AUTOMOTIVE INDUSTRIES

AUTOMOTIVE and AVIATION MANUFACTURING

CIVILIAN AND DEFENSE

MARCH 15, 1952

34th ANNUAL STATISTICAL ISSUE

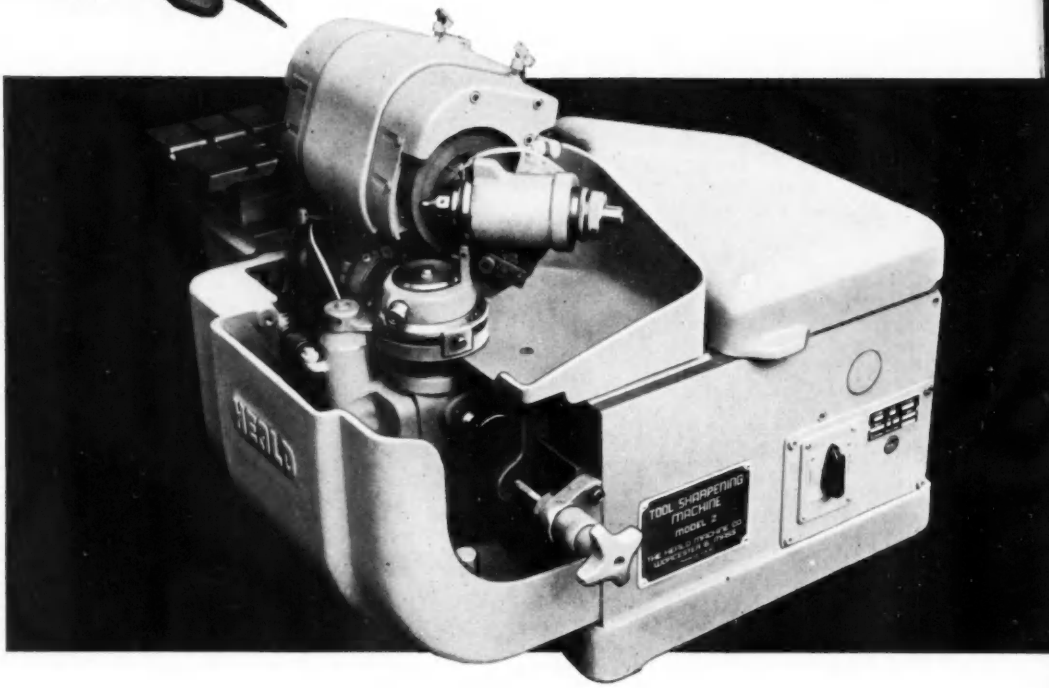
MOTOR VEHICLES • AVIATION • AUTOMOTIVE ENGINES

PRODUCTION, MATERIALS and MANAGEMENT

Complete Table of Contents, Page 71

A CHILTON PUBLICATION

Here's How Heald helps you get LONGER TOOL LIFE



Automatic lapping makes cutting tools last 2 to 4 times longer

Because it does the whole job *automatically*, the Heald Model 2 Tool Sharpening Machine eliminates the human errors that are unavoidable when cutting tools are ground by hand. Up to five different angles can be lapped simultaneously and in a single setting. You get exact duplication of tool shape *every time*.

This means longer tool life—more work pieces per sharpening—less machine down time. Still more important, it means *peak production* from your precision-built Heald Bore-Matics.

Ask your Heald representative about this time-saving, labor-saving Tool Sharpening Machine.

HEALD

Heald machines speed the nation's production

THE HEALD MACHINE COMPANY

WORCESTER 6, MASSACHUSETTS

Branch Offices: Chicago • Cleveland • Dayton • Detroit • Indianapolis • New York

WALTER FIRE FIGHTERS have

WAUKESHA ENGINES

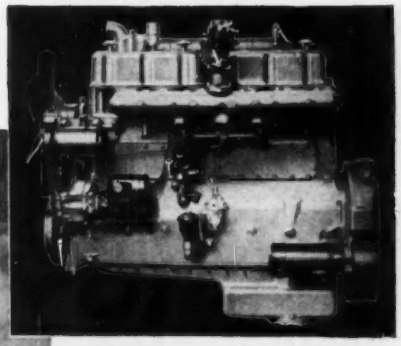
At The Washington National Airport they are always ready for any emergency—with this life-saving Waukesha-powered Walter Fire Fighter.

Probably the largest capacity airport fire crash and rescue truck now in operation... it carries 1300 gal. water and 130 gal. foam liquid. It has a 42,000 lb. GVW chassis, mounted on large single 16:00-24 tires, and its ever-dependable power plant is a Waukesha Model 145-GKB High Output Fire Fighter Engine developing 240 hp.

With this sure, swift starting Waukesha, the truck's always ready to roll... to speed to the spot where it's needed... and get there *when* it's needed!

Built specially for fire fighters, this *high output* Waukesha has every wanted feature—from twin ignition to the 3½-inch, 7-bearing, fully counterbalanced crankshaft. For details get Bulletin 1594.

WAUKESHA MOTOR COMPANY • **WAUKESHA, WISCONSIN**
NEW YORK TULSA LOS ANGELES



WAUKESHA Model 145-GKB High Output FIRE FIGHTER Engine — Six-cylinder, 5¼-in. bore x 6-in. stroke, 779 cu. in. displ., develops 240 hp at 2400 rpm. Arranged for full electrical equipment, air brake compressor and all modern accessories. Send for Bulletin 1594.

168

MATTISON
Here is a Mattison three head Vertical Spindle Rotary Automatic Grinder at the Ford Cincinatti Automatic Transmission Plant, finishing converter housings to close limits of accuracy on a real production basis. Work pieces are held in automatic clamping fixtures. Automatic sizers are constantly in operation, checking the work and keeping all pieces within specified tolerances without operators attention.
This is only one of the many grinders made by Mattisons. Whatever your surface grinding problem may be, write us for our recomendation on the proper method and machine for your job.
MATTISON
MACHINE WORKS
ROCKFORD · ILLINOIS

AUTOMOTIVE INDUSTRIES

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ball joints—By specifying Tourek Ball Joints — the only recognized standard — you can frequently simplify design, improve performance and lower costs. A wide range of standard types is available to meet most requirements. Ball Joints for special applications can be designed and produced to your specifications.

pipe plugs—Tourek's countersunk Pipe Plugs are accurate, high strength and economical. These advantages are yours at costs which are competitive to old style plugs.

Stock sizes, available with National Pipe or Dry-Seal threads are: ¼", ⅜", ½", ¾", and 1". Also available on special order in alloy steels, aluminum or brass in sizes up to 1½" diameter.

screw machine products—Tourek sets the pace for quality and service for your screw machine product requirements. A vast array of high speed precision equipment, including single and multiple-spindle automatics as well as complete secondary equipment, is backed by more than 30 years' production experience. You can depend on Tourek for "The Best In Quality Screw Machine Products."

LITERATURE

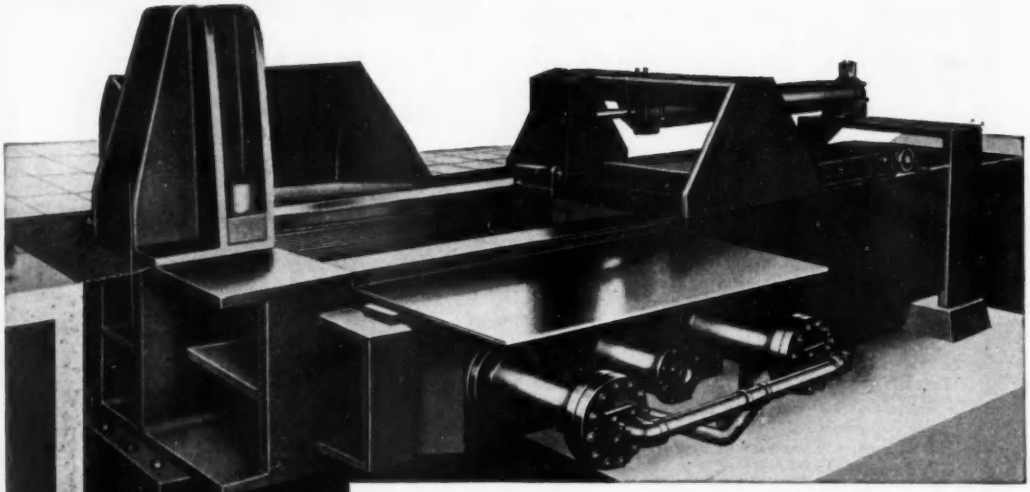
● Comprehensive data on any or all Tourek products sent promptly upon request . . . write for yours now. J. J. TOUREK MFG. CO., 4701 W. 16th St., Chicago 50, Illinois.

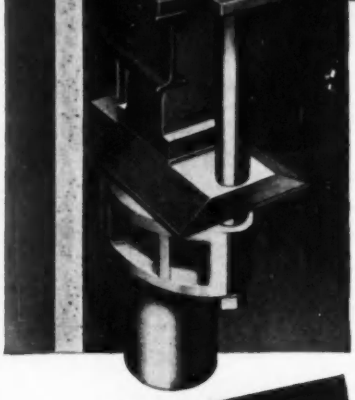
ESTABLISHED 1920

Our New Plant To Be Occupied In July

TOUREK

"THE BEST IN QUALITY SCREW MACHINE PRODUCTS"

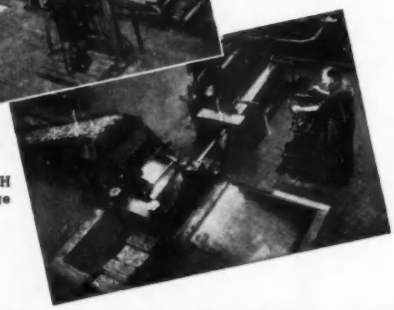




Help Keep the SCRAP CYCLE *in HIGH GEAR for Top Level Steel Production*

The "heart" of your sheet-steel salvaging program is your baling equipment. It should be adequate to handle your daily accumulation of sheet steel scrap efficiently at low cost-per-ton. Then you can show a profit on your salvaging operations while contributing your share to the rapidly expanding production of new steel in the years ahead.

Large G-H Balers, properly designed and ruggedly constructed, hold to a minimum the cost-per-ton of baled sheet steel scrap. Galland-Henning engineers, with a background of many years' experience in this field, offer you competent counsel on your scrap baling operations. Consult them NOW regarding modernization or expansion of your baling facilities to meet future needs.



Typical views of G-H Baler operations in large metal-working plants.

GALLAND-HENNING MFG. CO.
2747 South 31st St. • Milwaukee 46, Wis.

GALLAND-HENNING

SCRAP METAL BALING PRESSES

A 5921-1P

THE NEW

Polyken®

INDUSTRIAL TAPES

TAILORED TO YOUR JOB

Tape controls pull of 14,500 pound-seconds in JATO unit with Polyken Tape No. 276. Picture taken at the Aerojet Engineering Corp.

Tape holds 18 times the force of gravity

Jet-assisted take-off gets planes air-borne in half the distance it used to take with propellers alone. But when the Aerojet Engineering Corp. first introduced its JATO (Jet-Assisted Take-Off) unit to aircraft, the terrific jet thrust tended to rip the unit apart—to rip the charge loose from its shell.

Aerojet engineers consulted with a Polyken Sales Engineer, who suggested Polyken No. 276—a Fiberglas*-backed tape—to bind the plug and cap assembly that secures the charge to the shell.

Polyken No. 276, strong enough to resist a pull of 14,500 pound-seconds (or 18 times the force of gravity), is strong enough to keep the charge from moving rearward when the powerful energy thrust occurs.

We tell you the JATO story as an example of how industrial tape that's "tailored to your job" can do things you never thought tape could do. Let us study *your* problem, and we'll come up with a tape that will save you money, time and effort. That's a challenge. Won't you take us up on it?

Polyken Industrial Tape, Department of Bauer & Black, Division of The Kendall Company

*Reg. U. S. Pat. Off. by Owens Corning Fiberglas Corp.

Polyken, Dept. AIC, 222 West Adams St., Chicago 6, Ill.

For specifications and further information on No. 276 and other Polyken tapes, please send me your *FREE BOOKLET*, "Tape is a Tool."

Name_____ Title_____

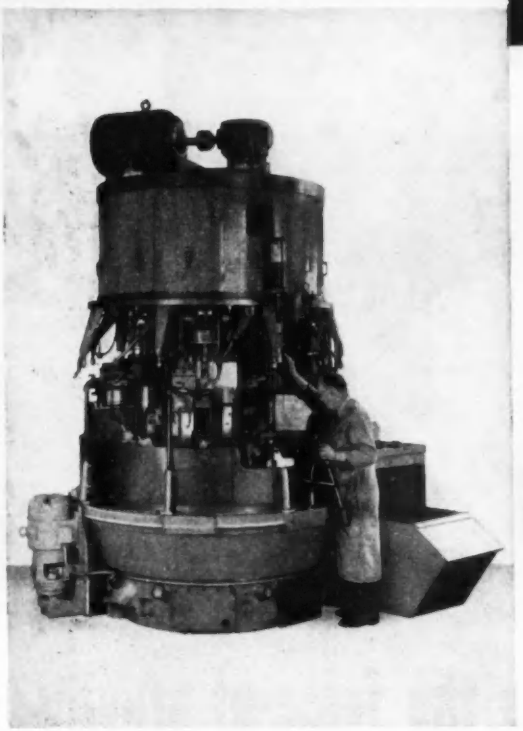
Company_____

Street Address_____

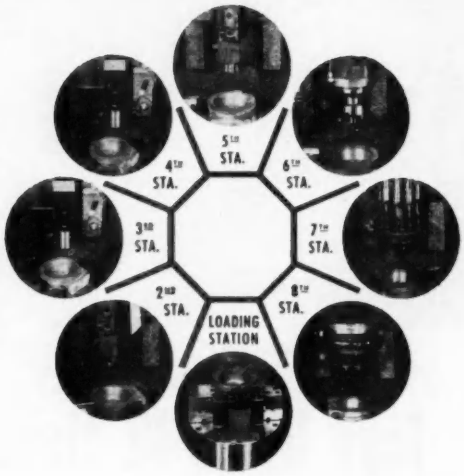
City_____ Zone____ State_____

Tradition

32 YEARS OF LEADERSHIP



THE
BULLARD
MULT-AU-MATIC
METHOD

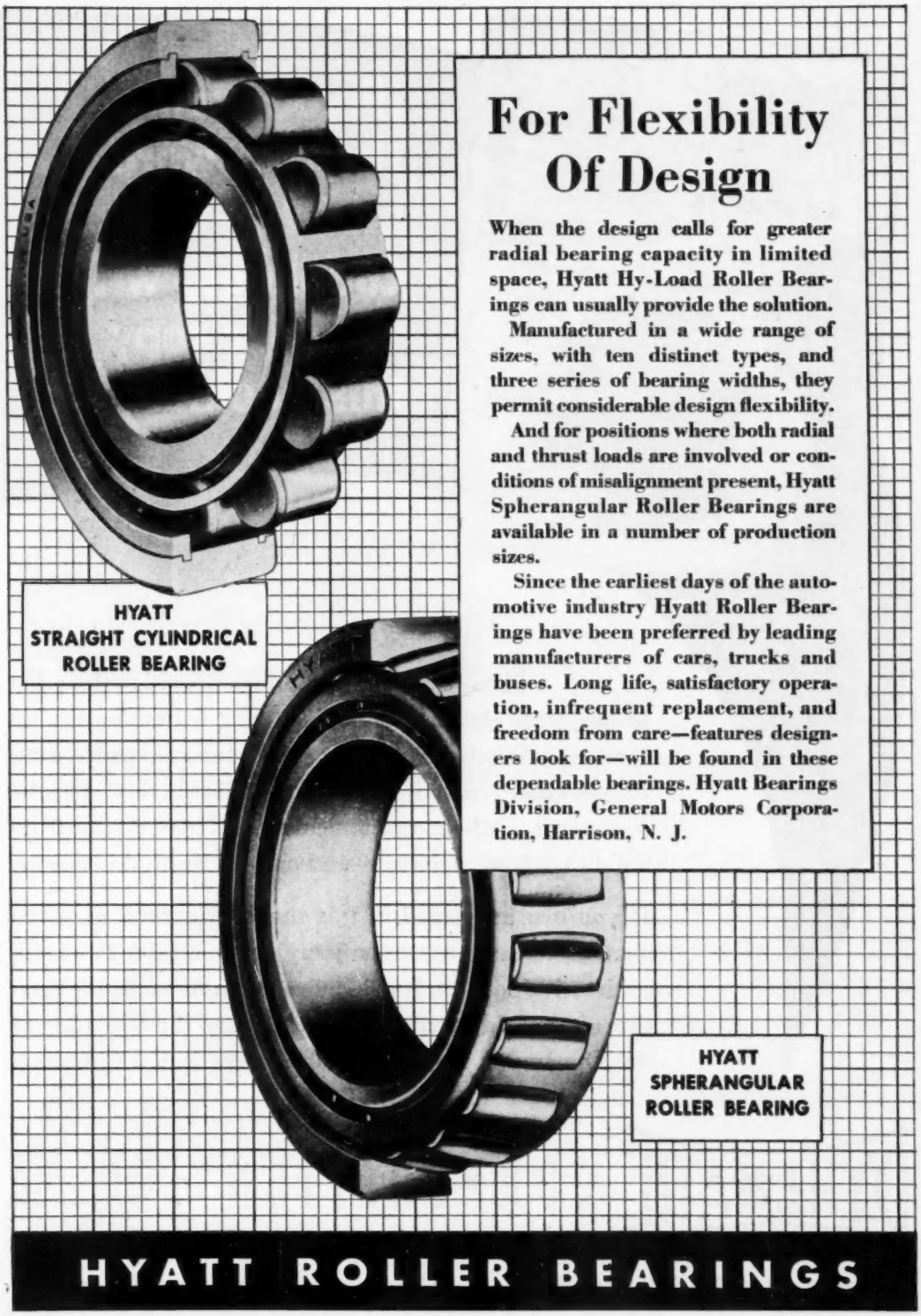


Leaders of Today's Industries have, during thirty-two years, recognized the Leadership of The Bullard Mult-Au-Matic Method. This Leadership has been established on consistent Production, Accuracy, and Efficiency. Economy of operation and Versatility of change-over from one job to another have proved the value of Mult-Au-Matic investment.

Whether it is the pace of Peacetime needs or the more urgent pace of Defense requirements, Mult-Au-Matics have remained key units in efficiently balancing manufacturing volume.

There's a Foresighted story in the 1928 Edition of "The Mult-Au-Matic Method". Write for your copy—Refer to "Tradition".

THE BULLARD COMPANY BRIDGEPORT 2, CONN.



For Flexibility Of Design

When the design calls for greater radial bearing capacity in limited space, Hyatt Hy-Load Roller Bearings can usually provide the solution.

Manufactured in a wide range of sizes, with ten distinct types, and three series of bearing widths, they permit considerable design flexibility.

And for positions where both radial and thrust loads are involved or conditions of misalignment present, Hyatt Spherangular Roller Bearings are available in a number of production sizes.

Since the earliest days of the automotive industry Hyatt Roller Bearings have been preferred by leading manufacturers of cars, trucks and buses. Long life, satisfactory operation, infrequent replacement, and freedom from care—features designers look for—will be found in these dependable bearings. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

HYATT ROLLER BEARINGS

IF you want the last word on Eddy-Current Couplings, write for your copy of this booklet

Eddy-Current Couplings provide a long list of desirable characteristics including instantaneous response, infinitely adjustable speed control, wide speed range, quiet operation, low power losses, low maintenance cost—without mechanical contact between the driving and driven members—and entirely from AC power.

If you are interested in this modern method of speed control, write on your company stationery for this comprehensive booklet. It presents a down-to-earth explanation of the Eddy-Current Principle, and the operation of the Dynamatic Eddy-Current Water-Cooled Coupling.

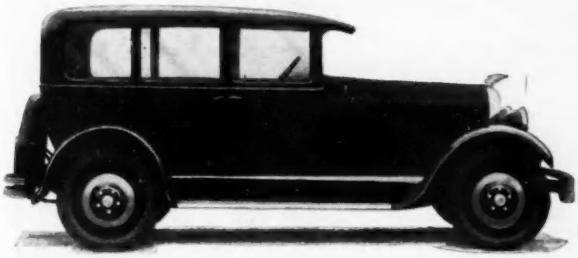
DYNAMATIC® **CORPORATION** • KENOSHA WISCONSIN

Subsidiary of **EATON MANUFACTURING COMPANY,** Cleveland, Ohio

Dynamometers • Oil Well Draw-Works Brakes • Adjustable-Speed Couplings • Eddy-Current Brakes
Ajusto-Spedes • Shovel Clutches • Press Drives • Lift Truck Clutches • Electronic Controls

Again in 1952 . . .

As in 1927 . . .



STUDEBAKER features the best: including ROSS

Ross

Cam & Lever **STEERING**

▶ ***Ross salutes Studebaker*** on its 100th birthday . . . and extends best wishes for the next 100 years of motorized progress, achievement and good fortune—all *Ross-steered* years, of course.

Since 1906 Ross has anticipated and met the ever-changing and increasing needs for easier, safer, more economical steering . . . with exclusive Ross designs that rank high as *fundamental developments* in the progress of an industry.

For a quarter century—since 1927—Ross has been serving the world's oldest manufacturer of highway vehicles—one of the most honored names in motordom—STUDEBAKER.

Again . . . Happy Birthday and Best Wishes.

ROSS GEAR AND TOOL COMPANY • LAFAYETTE, INDIANA

Make More Money on Auto Radios

"What we're making on radios doesn't add up to peanuts when you figure on our production delays, field complaints, and . . ."

"Take it easy, Fred! Let's talk to Bendix. On their record, they can give us the production...the quality... and the price we're looking for."

TALK TO Bendix

MOST TRUSTED NAME IN Radio

That's right! Bendix can *positively* show you how to make more profit on your automobile radios.

First of all, Bendix® Radio has solved more problems *and tougher problems* than any other radio manufacturer. That's a plus to remember if you get snowed under with field complaints about your present radio. And, too, Bendix understands quantity production—from the precision methods involved to the split-second timing that's necessary to meet tight schedules. It is this production know-how that has made Bendix a leading automotive supplier.

Working closely with the automotive industry has taught Bendix plenty about price, too. They know that on high-production units, a few cents can mean the difference between profit and loss. Their engineers are constantly developing circuits with fewer components and lower cost.

If you want to cut the cost and improve the quality of your auto radios, call Bendix.

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Get the complete story from our Detroit office.

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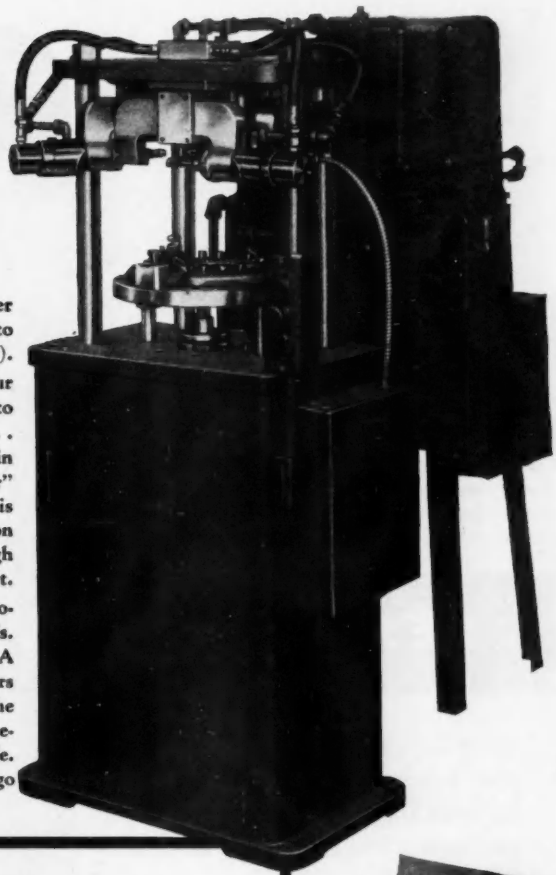
BENDIX RADIO DIVISION of
BALTIMORE 4, MARYLAND

Bendix AVIATION CORPORATION

THIS PRESS STAKES 3 PINS
SIMULTANEOUSLY
AT 3 DIFFERENT ANGLES!

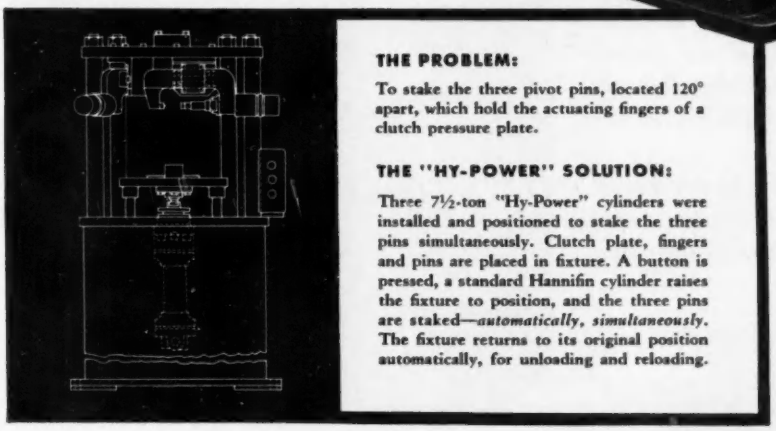


What Does This Suggest to You?

Tool engineers for a large automotive parts manufacturer utilized standard Hannifin "Hy-Power" components to build this special high-production machine (see below).

"Hy-Power" Hydraulics may be the answer to your problem, too. For here is equipment that permits you to apply forces up to 100 tons at any angle you want . . . permits you to punch, rivet, stake, crimp or bend in *two or more planes simultaneously.* Compact "Hy-Power" high pressure cylinders exert the force. The source is the Hannifin "Hy-Power" Generator . . . a combination of motor, pump, oil reservoir, control valves and high pressure intensifier assembled as a compact, single unit.

Hannifin "Hy-Power" Hydraulics has brought production economies to manufacturers in many fields. Why not explore the possibilities it holds for you? A Hannifin Field Engineer will discuss with your engineers how you can incorporate this modern equipment in the machines you build, whether they are one-of-a-kind specials or machines to be built by the hundreds, for resale. Hannifin Corporation, 1143 S. Kilbourn Ave., Chicago 24, Illinois.



THE PROBLEM:

To stake the three pivot pins, located 120° apart, which hold the actuating fingers of a clutch pressure plate.

THE "HY-POWER" SOLUTION:

Three 7½-ton "Hy-Power" cylinders were installed and positioned to stake the three pins simultaneously. Clutch plate, fingers and pins are placed in fixture. A button is pressed, a standard Hannifin cylinder raises the fixture to position, and the three pins are staked—*automatically, simultaneously.* The fixture returns to its original position automatically, for unloading and reloading.

WRITE FOR BULLETIN 150

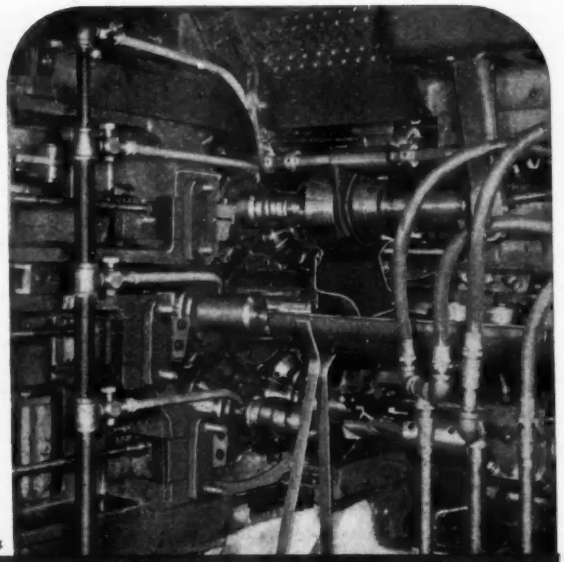
This book belongs in your files. A copy, telling the complete story of Hannifin "Hy-Power" Hydraulics, will be sent on request.

do ALL you CAN do . . . with

HANNIFIN

Air and Hydraulic Cylinders • Hydraulic Presses • Pneumatic Presses • "Hy-Power" Hydraulics • Air Control Valves

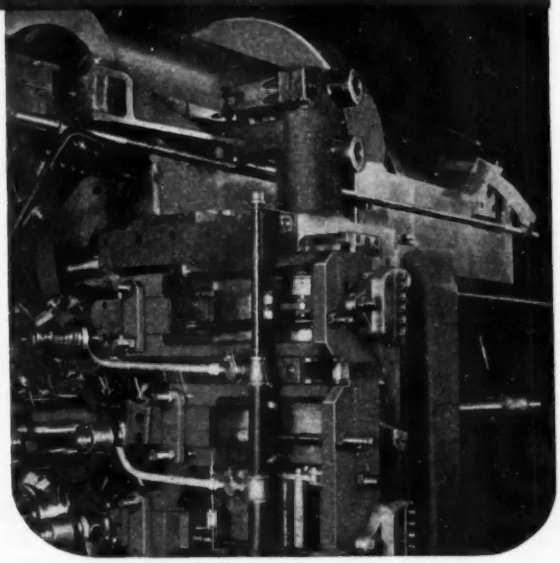
The main end slide of a 3½-51X figures prominently in producing the above piece. Its total length is 34½ ins. Its diameter is 12 ins. Its swing for die heads, etc., is 4 ins. The maximum recommended load for the slide is 12,000 foot pounds. Its bearing area is approx. 258 sq. ins.



Front Side of Tooling Area

BETTER BEFORE THAN AFTER

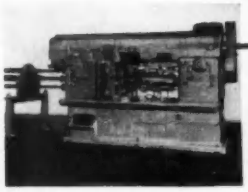
Rear Side of Tooling Area



What an "automatic" does *after* it goes into production is information for which you have already paid a purchase price. How much more you will pay for operation and maintenance costs will determine the completeness and dependability of that information.

It is always better to have complete and dependable information *before* the purchase than after. You can have it on CONOMATICS.

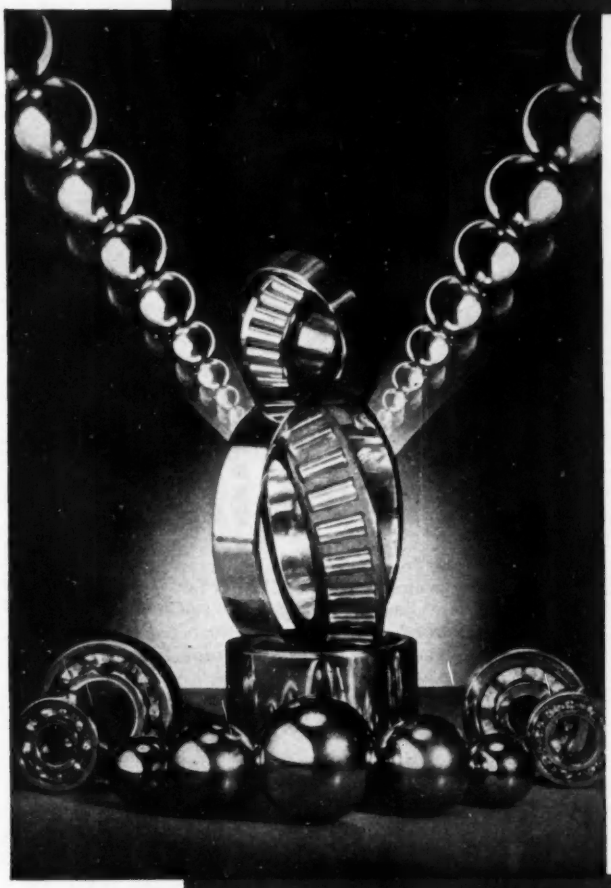
A Comparison of ALL Automatics is in favor of Cone



Conomatic } CONE AUTOMATIC MACHINE COMPANY, INC. WINDSOR, VT., U.S.A.

LESS DOWNTIME, MORE PRODUCTION

for Hoover Ball and Bearing Company



As one of America's leading bearing manufacturers, Hoover Ball & Bearing Company, Ann Arbor, Michigan, is always searching for ways to step up production and improve quality. In the course of this never-ending program, Hoover called in a Texaco Lubrication Engineer for consultation.

The Texaco Lubrication Engineer studied thoroughly all the problems involved, then made recommendations which included changing from a competitive grinding oil to a 1-to-50 emulsion of *Texaco Soluble Oil D.* The change was made. Now production is up, costs are down because, with Texaco –

- *machines stay clean*
- *grinding finish has improved*
- *there is no rusting*
- *emulsion filters properly, does not separate, lasts far longer*

Here again is an example of how Texaco quality products plus the know-how of Texaco Lubrication Engineering Service enable all industry to do its machining better, faster, and at lower cost.

To enjoy these benefits in your plant . . . whatever you are making, wherever located . . . just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO Lubricants, Fuels and Lubrication Engineering Service

Faithfully yours 50 *for Fifty Years*

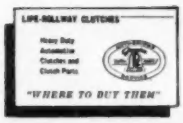
TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

Lipe CLUTCHES can take it!

Your drivers don't have to baby this rugged, heavy-duty, multi-lever clutch. And for good reason! There's just *one* spring and *20* equalizing levers. Result: pressure is evenly distributed all over the pressure plate . . . every part touches at the *same instant* with the *same pressure.*

These days, it's more important than ever to keep "down-time" to a minimum. Your service and repair shop will appreciate copies of our new Clutch Service Manual, and a free, large size wall chart detailing clutch adjustment procedure. Write for free copies.

For quick service on genuine Lipe parts, look for this ad in the yellow pages of the telephone directory in principal cities.

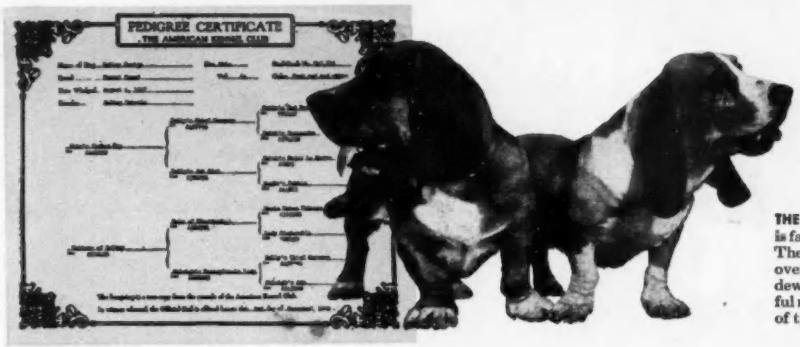


LIPE ROLLWAY

Lipe - ROLLWAY CORPORATION

Manufacturers of Automotive Clutches and Machine Tools

Syracuse 1, N. Y.



THE BASSET HOUND, a hunting dog, is famous for his keenness of scent. The ears are long enough to fold over the tip of the nose and heavy dewlaps hang from a short powerful neck. The short legs are capable of tireless action.

"Pedigree" is a Fancy Name for "Quality" . . . in Bassets or in Boxes

AND in both cases, it's earned by knowing and controlling every step in development, right up to the finished article.

UNION traces the ancestry of its corrugated containers all the way back to Union-owned forests . . . controlled through every step of manufacture in Union mills (largest in the world) and right up to the shipping of Union boxes to your plant.

That earns a pedigree for Union boxes, because you *know* you can depend on every shipment being up to the same high standards. You can reduce breakage, pilferage, returns.

Union Carbide and Carbon agrees, and ships its nationally known Prestone Anti-Freeze all over America in Union's *pedigreed* boxes—just as hundreds of other famous firms do.

TRADE MARK UNION

Dependable Packaging Since 1874

UNION Corrugated Containers

UNION BAG & Paper Corporation

Principal Offices: WOOLWORTH BLDG., NEW YORK 7, N. Y.

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Here's why

it pays to know your

HSM

HONEYWELL SUPPLIES MAN

Made to highly uniform wall thickness, Brown thermocouple protecting tubes are supplied in a variety of metals, alloys and refractory materials . . . in a wide selection of sizes and styles from which your HSM can select the right one for your application.

R. C. SHUMACHER, Honeywell Supplies Man in the Cleveland area, recommends the correct Brown protecting tube for an angle-type couple in a lead pot at the L. R. Oatey Company . . . after outlining the benefits of the HSM plan for buying pyrometer supplies.

You'll be pleased when you, too, learn how *this plan* can add new convenience and economy to *your* pyrometer supplies purchasing!

There's a Honeywell Supplies Man near you . . . at your local Honeywell office . . . as near to you as your phone. Call him in today . . . let him show you how the HSM plan can work in your plant.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, 4548 Wayne Avenue, Philadelphia 44, Pa. Stocking points in Philadelphia, Cleveland, Chicago, Atlanta, Houston, Los Angeles and San Francisco.

MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS
First in Controls

● *Important Reference Data*

WRITE FOR NEW PYROMETER SUPPLIES BUYERS' GUIDE NO. 100-4.

Production Pointers from GISHOLT

TIME-SAVING IDEAS

Presented as a service to machine shops, we hope some of these interesting ideas, culled from thousands of jobs, will suggest ways to help you cut time and costs in your own metal work.

CROWDING 22 CUTS IN 2.5 MINUTES

Two Simplimatics Team Up for Rapid Production

Here's a rather intricate bevel drive gear blank that calls for 22 cutting tools to machine it. Normally, several operations would be needed to do the job.

Not this time. The job has been "*simpled*" down by the Simplimatic Automatic Lathe—with two machines handling all 22 machining operations. It's possible because the large platen table of this machine permits a flexibility of slide arrangements to bring more tools into work.

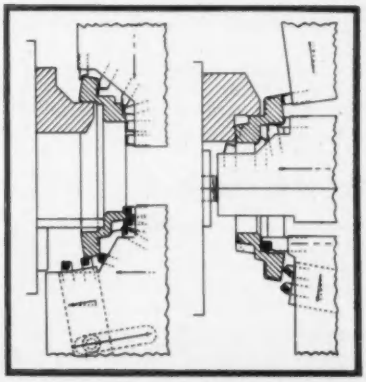
One operator tends both machines, with the 22 cutting operations split between the two so that a completed blank is turned out every 2.5 minutes.

A Machine for Each Side

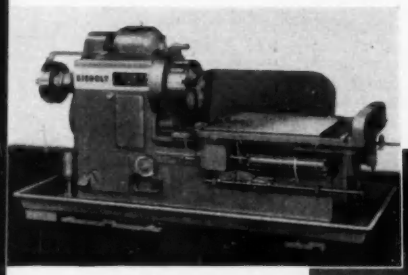
The first Simplimatic has a total of 14 tools arranged in the front and rear slides which do all exterior surfaces and the hub face. The part then moves to the second machine which has a total of 8 tools on three slides. The center slide handles the bore. The front slide roughs the taper face with a matched cut, while the rear slide finishes.

The almost limitless slide possibilities and large number of tool approaches of the Simplimatic allow this standard machine to do the job with all the benefits of a special machine.

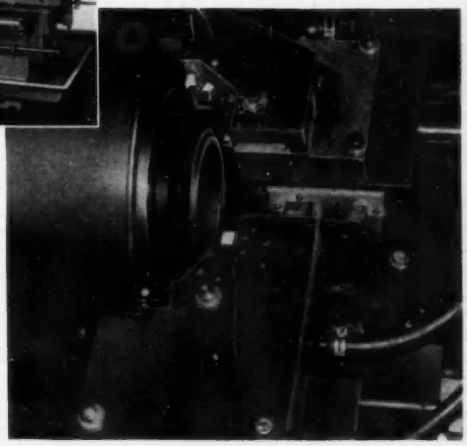
The Simplimatic catalog pictures a wide range of interesting jobs. Ask for your copy.



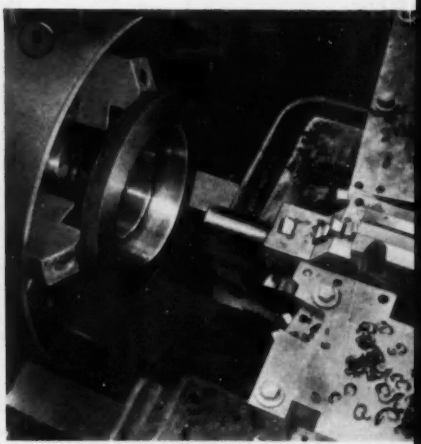
Tool setups for both Simplimatics.



Simplimatic Automatic Lathe.



First operation in machining the bevel drive gear blanks has 14 tools working on front and rear slides.



For the second operation, this Simplimatic has a center slide in addition to front and rear slides. Eight tools are used this time.

GISHOLT

TIME-SAVING IDEAS

HOW TO MAKE EASY WORK OF DEEP GROOVING

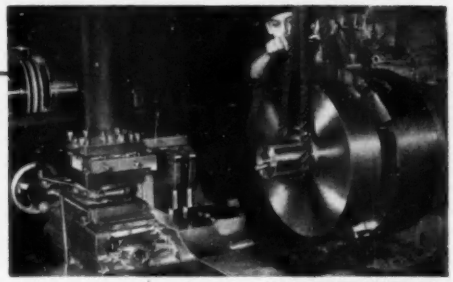
Special Attachment enables Standard Turret Lathe to do job

The large, heavy workpiece you see being handled here is a torsional vibration dampener for a diesel engine. The tricky part of the machining job is the cutting of two grooves around the 21″ periphery—each 1 3/16″ wide and 7¼″ deep.

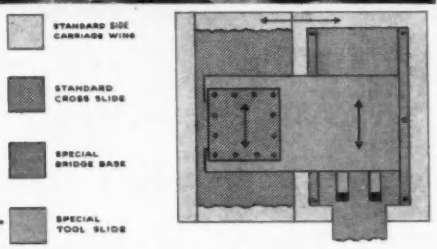
The work is divided into roughing and finishing operations on two 4L Saddle Type Turret Lathes, each having a special attachment on the standard cross slide carriage. This consists of a special bridge base bolted to the carriage wing at the front. This bridge also bears on the rear way and is held down and gibbed. On top of this fixed base is a tool slide block with extensions that clamp into the square turret. Thus, the forward motion of the cross slide and square turret carries the tool block and slide into the work.

The job starts with the first machine plunge cutting the two grooves to 1⅛″ width and full depth. Cuts are started at 17 r.p.m. and progressively increased to 31 r.p.m., with .006″ feed used throughout. H.S.S. milling cutter blades, with a radius formed to curl the chips, are mounted in 1095 steel shanks.

The part is then moved to the second machine where the grooves are increased to 1 3/16″ width with the feed increased to .012″. Finished width is held to .005″, and the faces are held to .001″ of perpendicular.



Loading the 250 lb. steel forging for first operations in cutting two 1⅛″ grooves to 7¼″ deep. In background, second machine increases grooves to 1 3/16″.



Schematic sketch of the special attachment on the standard cross slide carriage.

The part is then moved to the second machine where the grooves are increased to 1 3/16″ width with the feed increased to .012″. Finished width is held to .005″, and the faces are held to .001″ of perpendicular.

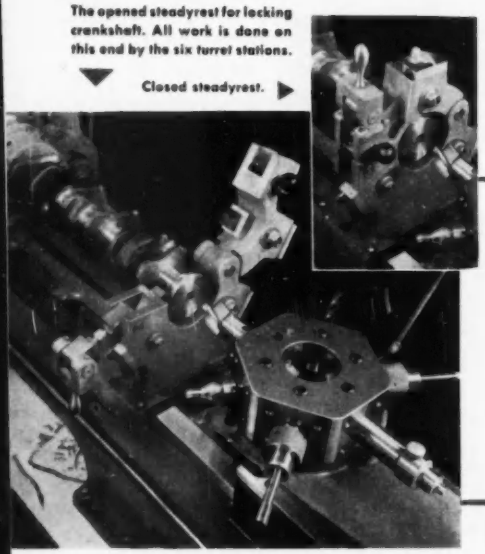
The weight, size and material of the part—250 lbs. in 21 inches of steel forging—are good reasons for using the sturdy, powerful Gisholt 4L Turret Lathes on this job.

On this simple adaptation of Standard Turret Lathes, heavy workpieces are deep grooved with ease and accuracy.

LONG BED TURRET LATHE FINISHES CRANKSHAFT END

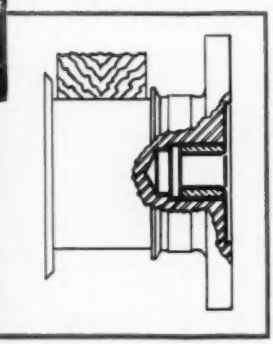
The opened steadyrest for locking crankshaft. All work is done on this end by the six turret stations.

Closed steadyrest. ▶



All Work Handled from Hexagon Turret

This standard No. 3 Ram Type Turret Lathe has a special job—machining the flange end of a six-cylinder automobile crankshaft. To suit it for this singular job, there is a 24″ longer bed and the front carriage has been omitted.



Cutaway drawing shows work on crankshaft end.

The crankshaft is driven from the gear end. The driving fixture (which has been balanced on a Gisholt Balancer) is a hinged half-bearing which drives against the crank cheek. The other end of the crankshaft has the main bearing supported by a steadyrest equipped with end-grain hardwood shoes.

Machining operations are relatively simple—drill, counterbore, finish bore and ream. After these, a .0005″ undersize bushing is placed on the turret arbor and pressed into the counterbore. This permits the bushing to be reamed from the final turret station. Floor-to-floor time is 3.1 minutes. It's a good example of how a Standard Turret Lathe can be inexpensively adapted to handle an unusual part with speed and precision.

Simple bed extension enables this standard Ram Type Machine to perform 6 special finishing operations on crankshaft ends with all work handled from hexagon turret.

GISHOLT

GISHOLT

TIME-SAVING IDEAS

ONE MACHINE OUT-PRODUCES TWO

No. 12 Hydraulic Cuts Time 70%

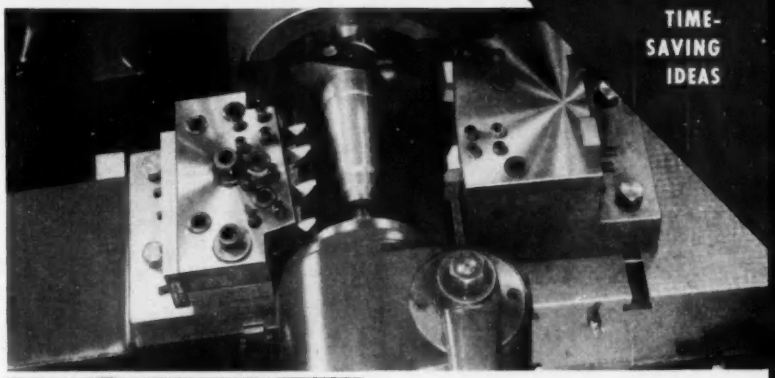
Here's a case where production of forged steel diesel injector bodies plodded along at 12 per hour with *two* lathes on the job.

Looking for a better way, this manufacturer found it—and did away with a second machine to boot. Now, the job is handled on one No. 12 Hydraulic Automatic Lathe at the rate of a completed part every 1.5 minutes—40 per hour.

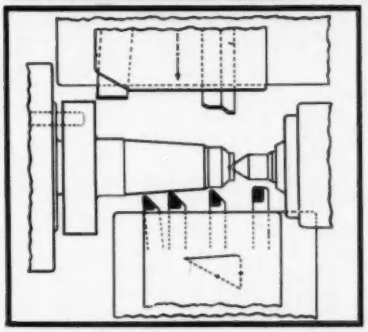
Four tools on the front carriage taper turn the entire length of the body. Two tools on the rear slide move in to face the shoulder and then drop into reduced feed to shave form the straight diameters. Tooling is well planned, permitting two other bodies of similar style to be handled with a minimum of changeover.

Because of the No. 12 Hydraulic's automatic cycle, the operator is able to handle another machine as well for even more production.

In a single automatic operation, this one No. 12 Hydraulic finishes parts in 1.5 minutes, which two machines needed 5 minutes to do.



Closeup of No. 12 Hydraulic Automatic Lathe tooled for machining injector body.



Tooling setup of front and rear slides of No. 12 Hydraulic.

New literature, showing 28 widely different jobs being done by this versatile machine, is now ready.

HOW TO MAKE BIG SAVINGS ON GEAR BLANKS

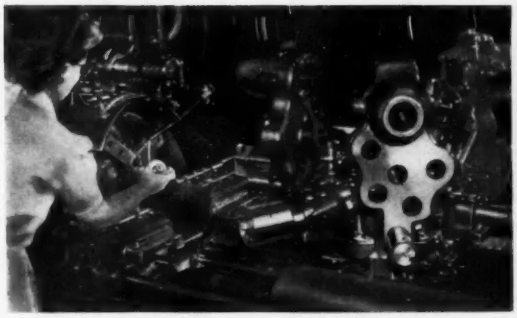
Four Times Faster Production on Fastermatic Automatic Turret Lathe

You don't need long runs to profit from the economies of the Fastermatic Automatic Turret Lathe. Here's a case where the Fastermatic with simple, standard turret lathe tools produces gear blanks in lots of 100 with real savings.

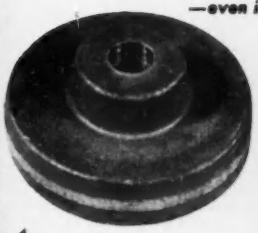
The operations are rough and finish turning, facing and boring. Where it required 8 minutes to do the job by the older method, floor-to-floor time is now a flat 2 minutes—a 400% production boost! Moreover, because the entire cycle is automatic, the job was turned over to a woman—making skilled man power go further. Not only are critical tolerances maintained, because of the reduction of the human element of a hand-operated machine, but operator also runs a 2nd machine.

Write for copies of the Fastermatic Catalog and Fastermatic Tool Catalog, showing the many standard tools available for production work.

The Fastermatic with standard turret lathe tools, operated by a woman, proves the savings in time and skilled man power this machine makes possible—even in medium runs.



Fastermatic setup for machining 25 gear blanks per hour.



Rough casting and finished gear blank 2 minutes after.

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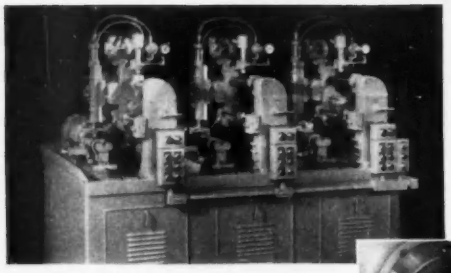
TIME-SAVING IDEAS

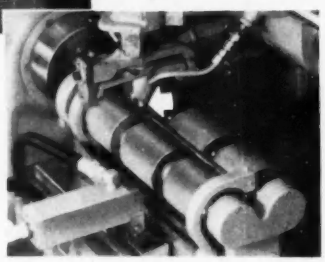
ONE MACHINE SUPERFINISHES THREE SHAFTS AT ONCE

Three-Station Superfinisher Does Large Volume Job



Special 3-station Superfinisher for handling three different parts at once.

Close-up of one station of the Superfinisher. Arrow points to Superfinish stone which makes 4 passes over stock rotated between the two Phenolic rolls.



Here is the way shafts of various lengths and diameters are Superfinished at once on one machine. This Superfinisher, a special model, has three stations, each handling a different size. Station 1 handles ¼" stock up to 9" long; station 2 takes ½" stock up to 16" long, and station 3 accommodates ⅛" stock up to 17".

Stock is loaded into each station and buttons pressed to start operations. Phenolic rolls then rotate the work while the head with two Superfinish stones comes into working position. The oscillating head makes four passes over the stock at the rate of 7½" per minute. After the fourth pass the head rises, an ejector raises the finished workpiece, and rolls it into a tote pan. The station then gets a new workpiece. All stations operate identically. Stock measures 15-20 micro inches RMS as it comes to the machine, and 3-4 micro inches RMS after Superfinishing.

One operator tends this 3-station Superfinisher to produce exceptionally smooth shafts.

Ask for book "Wear and Surface Finish," which gives complete, up-to-the-minute information.

HERE'S A REAL BALANCING DEPARTMENT

Wide Variety of Work Handled on Efficient Production Basis

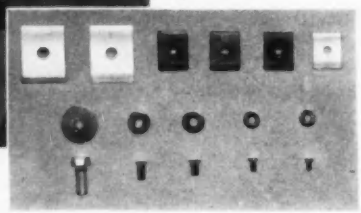
The importance of balancing is given full recognition at the Buffalo Forge Company. This leading manufacturer of fan rotors uses balancing to eliminate vibration, premature bearing wear and undue noise in these rotating parts.

Theirs is a true *production* setup, with all balancing done in a complete, separate department as a regular part of manufacturing operations. A variety of Gisholt Balancing Machines do static and dynamic balancing of parts weighing from two pounds to two tons. Both balancing and correction of unbalance are done on the same machines.

So fully systemized is this operation, even unbalance corrections are *pre-planned*. This is possible because the readings of unbalance can be set to whatever unit of correction is most convenient. In this case, it's in grams. The operators take direct readings from the balancers and then gather studs or rivets and washers, each having a given weight, for the needed combination to make indicated correction on any workpiece.

Gisholt Balancing Machines greatly simplify production balancing by enabling the user to read the measurements in the exact correction units most convenient for the work.

These parts can be used in any combination to provide the exact weight in grams for correcting unbalance in all size rotors.



The complete, separate balancing department at Buffalo Forge Company.

DYNETRIC BALANCERS GISHOLT

Production balancing like this is only one of many helpful subjects offered in the complete program of the Gisholt Balancing School. Write for full details and starting dates.

THE GISHOLT ROUND TABLE represents the collective experience of specialists in the machining, surface-finishing and balancing of round and partly round parts. Your problems are welcomed here.

452
No. 581

GISHOLT

GISHOLT MACHINE COMPANY
Madison 10, Wisconsin

Write for your copy of Gisholt's new general catalog.

TURRET LATHES • AUTOMATIC LATHES • SUPERFINISHERS • BALANCERS • SPECIAL MACHINES

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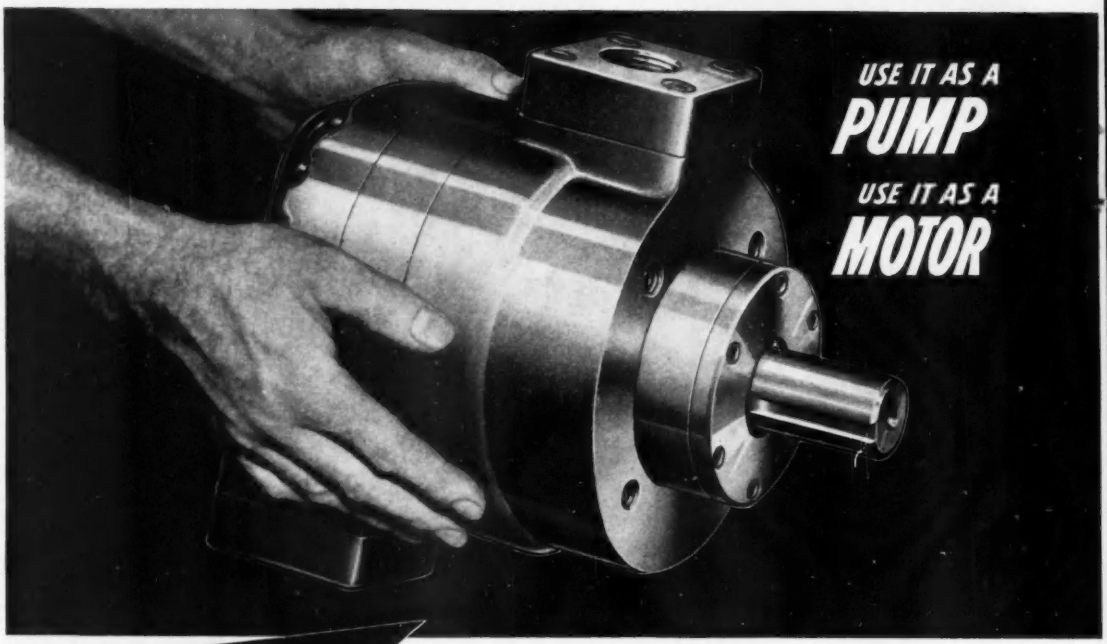
Denison scores

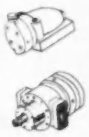


A Few Denison FIRSTS

1944 Multipress . . . self-contained oil hydraulic production tool offering a new concept of wide-range adaptability and control.

1946 5000 psi relief, sequence and unloader valves. Hydraulically balanced . . . closer control.

5000 psi constant volume pumps . . . heavy duty, high volumetric efficiency.



1948 5000 psi variable-volume pumps for handwheel, cylinder, stem or pressure compensator control of pump volume.

1950 5000 psi surge-damping controls in both aircraft and industrial models.

5000 psi pilot-operated directional controls . . . positive action regardless of pressure.

THREE popular sizes . . . Built for 2000 psi continuous duty . . . Ready for use as either pump or motor without alterations of any kind in the unit itself . . . Clockwise or counter-clockwise operation as either pump or motor . . . 5 to 60 gpm pumping capacities . . . 380 to 4600 inch-pounds torque capacities as a motor . . . Hydraulically balanced vane action, with dual sealing edges contacting cam ring . . . Meets 16 different porting and directional requirements as either pump or motor . . . Face, flange and foot mountings . . . Rugged, space-saving compactness plus two-way efficiency!

DENISON Hydr**OIL**ics

another FIRST

NOW a single-stage 2000 psi

Dual Purpose Vane-Type Oil Hydraulic Pump

"The Finest Money Can Buy!"

Denison adds another important *first* to a long list of new and improved products and ideas in the oil-hydraulic field. This all-new, radially balanced hydraulic power unit works equally well as a pump or as a fluid motor! No changes of any kind have to be made in the unit itself. *Think of the advantages in being able to stock one type of unit for both pump and motor needs!*

In addition the new unit offers either clockwise or counter-clockwise rotation—for either pump or motor applications.

The unit is built in three sizes, each offering interchangeable cam rings for various volume or torque requirements — providing eight different pump or motor capacities in all.

As a pump — the 8 models have volume capacities from 5 to 60 gpm and are capable of operating continuously at 2000 psi.

As a motor—the 8 models have torque capacities from 19 to 230 inch-pounds per 100 psi and are capable of operating continuously at 2000 psi.

As a pump or a motor — the unit provides positive, constant displacement—even at low speeds. Vanes are hydraulically balanced for smoother action, longer life, less wear.

Cantilever support for the shaft and bearing assures rigid support for external shaft loads, and minimizes the effect of misalignment. Pressure-equalization reduces surge and pulsation of oil delivery to a minimum.

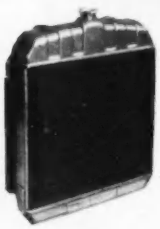
Simplicity is the key to the versatility, compactness and efficiency of this new pump/motor, making it a worthy addition to the long line of "firsts" by Denison.

Write for Bulletin P-5 today! *It gives full details on this unique, dual purpose HydrOILic Pump/Motor.*

The DENISON Engineering Co., 1212 Dublin Rd., Columbus 16, Ohio

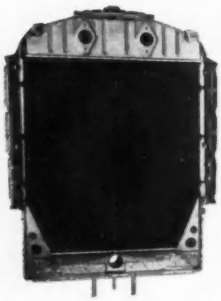
25 YEARS OF PROGRESS IN HEAT TRANSFER ENGINEERING

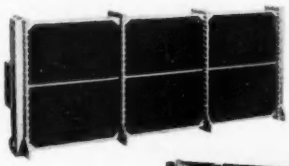
Young Quality



STAMPED TANK SHEET METAL RADIATORS

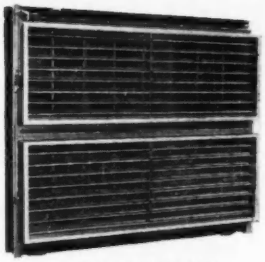
Composite type radiators of sheet metal stamping are specially designed for agricultural, automotive, industrial and prime mover installation. Clean-cut design, heavy-duty construction, carefully designed for each application.





RADIATORS FOR ALL TYPES OF DIESEL AND GAS TURBINE LOCOMOTIVES

Heavy-duty construction for roof, side or front mounting as required. Units are built integrally or in sections. Complete line of accessories includes lube oil coolers, shutters, controls, fans, etc.



HEAT EXCHANGERS, OIL, WATER, LIQUID AND GAS COOLERS

Standard production line offers complete range of sizes, materials to meet all requirements for all tube and bundle applications in automotive, industrial, petroleum, chemical and process fields. Efficient design, accurately manufactured, tested and rated provides more cooling at less cost.

CAST TANK RADIATORS

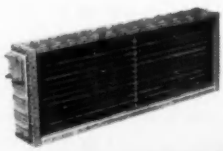
Design offers choice of one-piece or sectional construction radiator with castings used for top, bottom tanks and for side members as required. Appearance as well as ruggedness can be built into these as required.

TRUCK, BUS, AND LOCOMOTIVE CAB HEATERS

Heaters designed to meet standard and special requirements for trucks, buses and all types of locomotives. Complete range of accessories coupled with varied heater core types assure proper selection for each specific requirement.

INTERCOOLERS FOR SUPERCHARGERS AND COMPRESSORS

For stationary and marine Gas, Gasoline or Diesel engines, and air compressors. Give highest heat transfer at lowest water and air pressure drop per unit volume of surface.



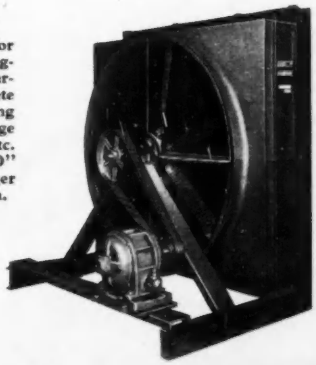
YOUNG RADIATOR COMPANY • RACINE, WIS.

YOUNG

HEAT TRANSFER PRODUCTS FOR THE AUTOMOTIVE AND AVIATION INDUSTRIES

HEAVY-DUTY "FULL-FLOW" AND STANDARD SERIES JACKET WATER COOLERS

To meet all requirements for heavy-duty cooling these rugged cooling machines are carried in stock with a complete line of accessories including motors, idlers, pumps, surge tanks, controls, shutters, etc. Young "MONO-WELD" construction assures longer life, trouble-free operation.

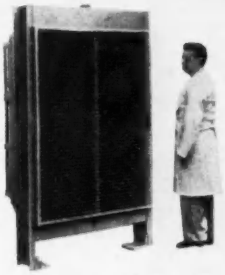


VERTICAL AIR DISCHARGE COOLER AND CONDENSER MACHINES

Carefully designed, full size plenum chambers, carefully streamlined air entrance rings, specially designed fans, simple, rugged structure of frame and metal work with a wide choice of cores for all applications, these units are manufactured to handle all cooling requirements, oil, water, gases, a core for each requirement. The most complete line of Engine Jacket Water Coolers manufactured.

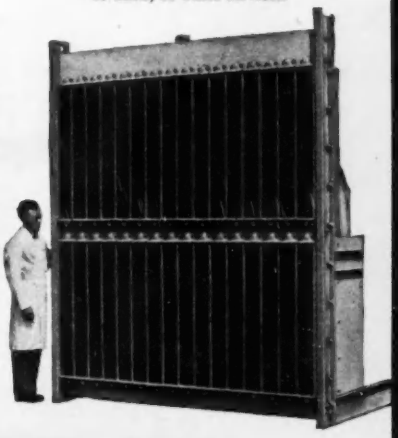
YOUNG "MONO-WELD" SECTIONAL UNIT RADIATORS

Standard line of the finest design made for large stationary and portable skid units featuring Young "MONO-WELD" construction as described above, left, applied to these cooling machines. Available with complete range of accessories, fans, motors, shutters, pressure caps, controls, surge tanks, lube oil coolers, gas coolers, vapor phase tank structure for high temperature operations. Built with "C" frame; pressed formed steel base and side members; rugged to last indefinitely; ready to skid or assemble to engine unit or remote as desired; easy to lift, ship and handle.



YOUNG "MONO-WELD" STEEL TANK AND SIDE MEMBER HEAVY-DUTY RADIATOR

Developed by Young engineers to meet special rugged requirements for heavy-duty heat transfer units for aboard ships, stationary oil field power units, or other services.



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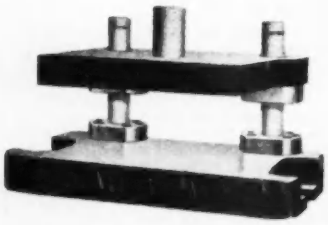

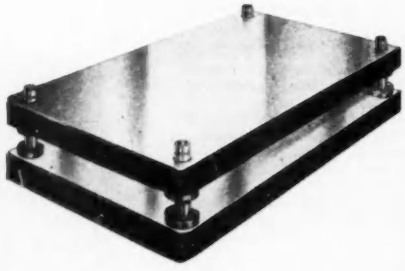

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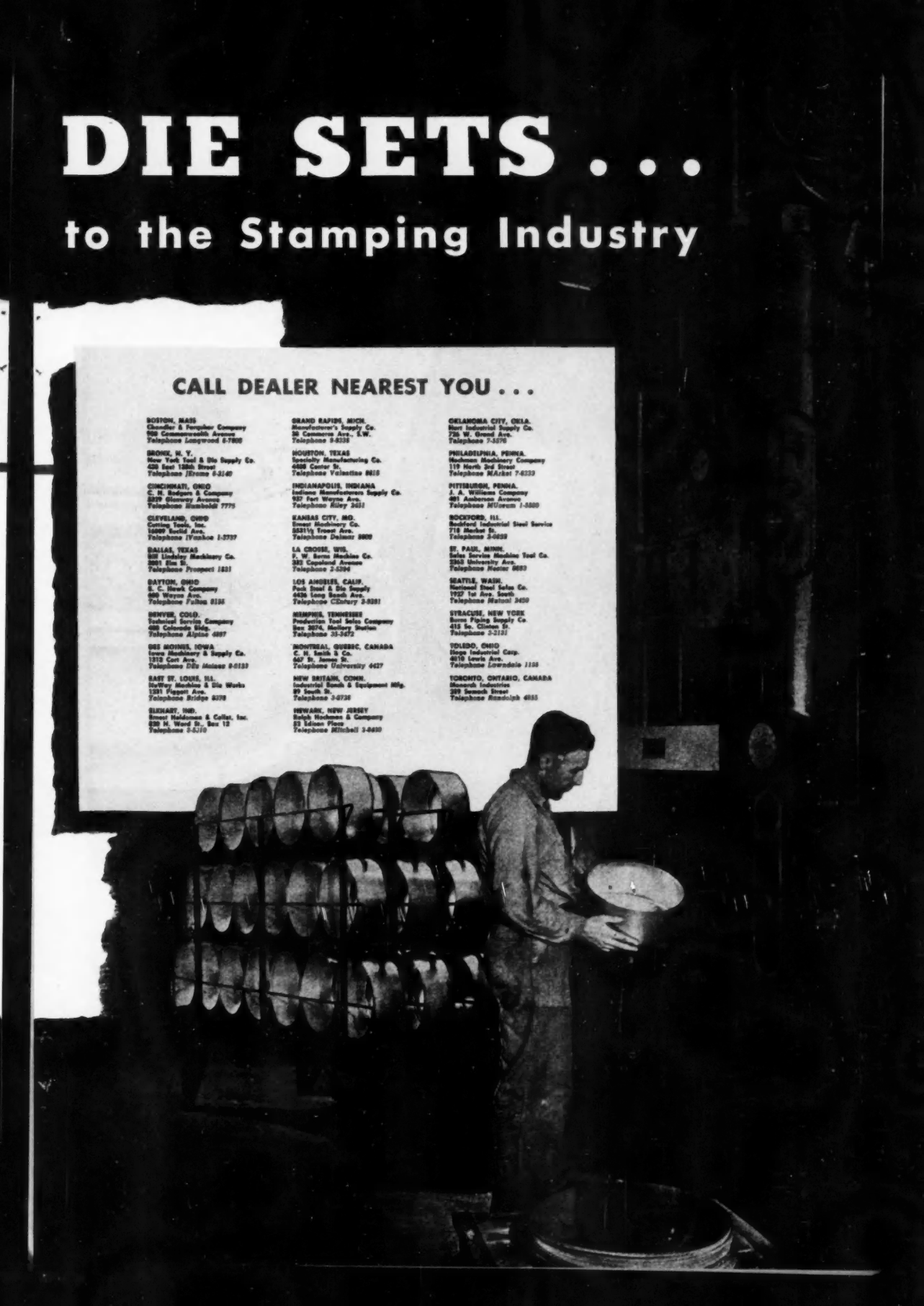

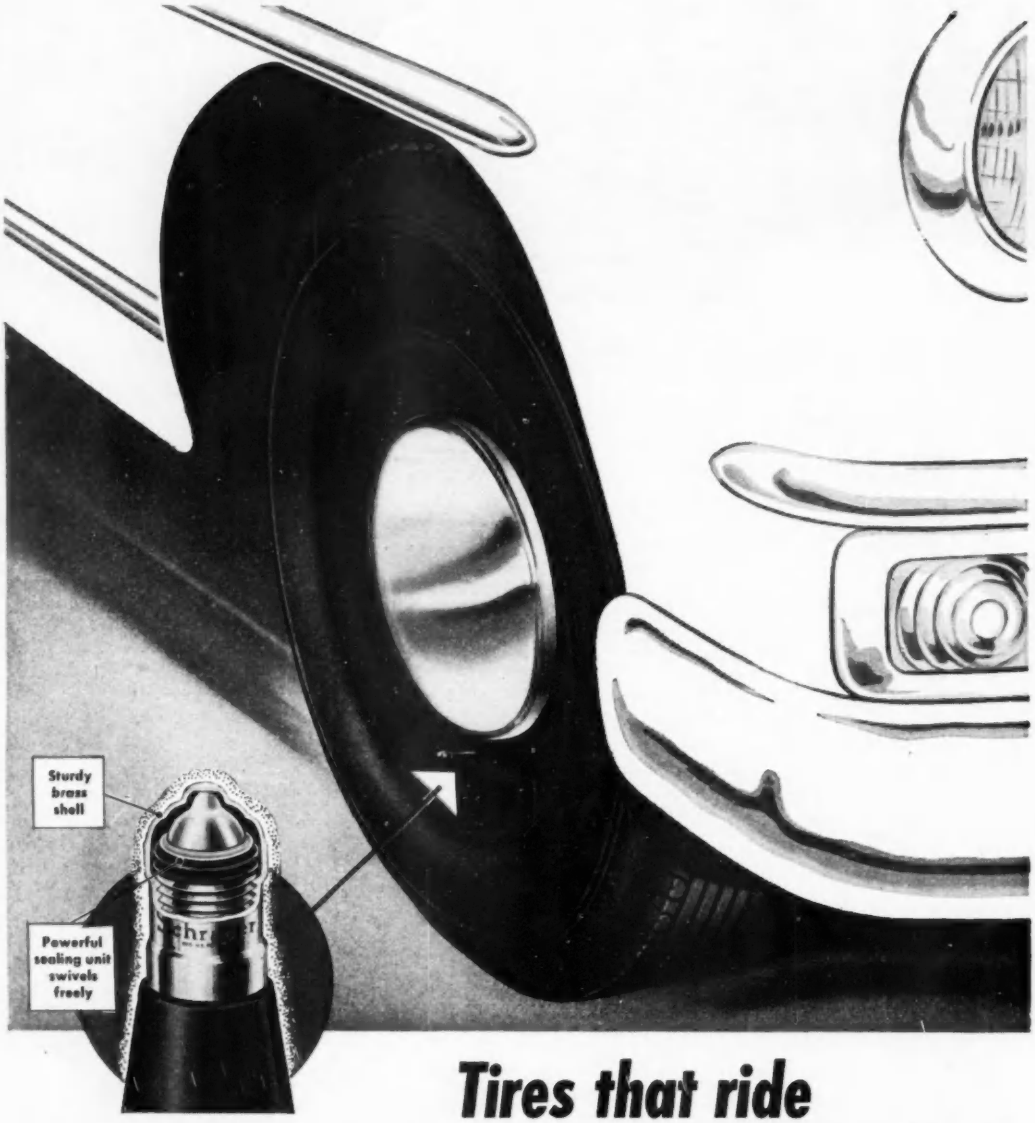

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Load the family in the car. Head for the beach, the country, or town or church . . . with never a fear about the tires. They're built to give protection for many miles of easy, economical driving. A key to dependable tire performance is the valve that *locks* the air in the tire.

Schrader Tire Valve Caps are designed with the metal outer shell and the specially compounded rubber sealing unit *doubly* reinforced with non-collapsible metal plates. Schrader Valve Caps are *guaranteed* air-tight up to 250 lbs. You can be sure any vehicle, any tire, equipped with Schrader Tire Valves, sealed with these *quality Schrader Caps*, has positive protection at this vital point.

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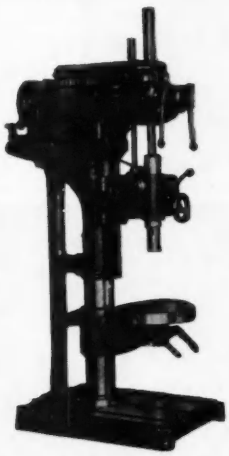
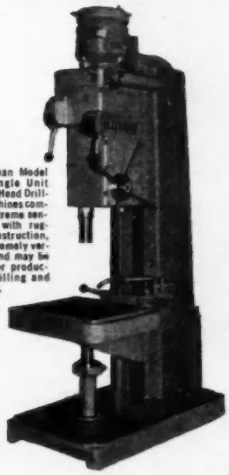
THE CLEEREMAN LINE

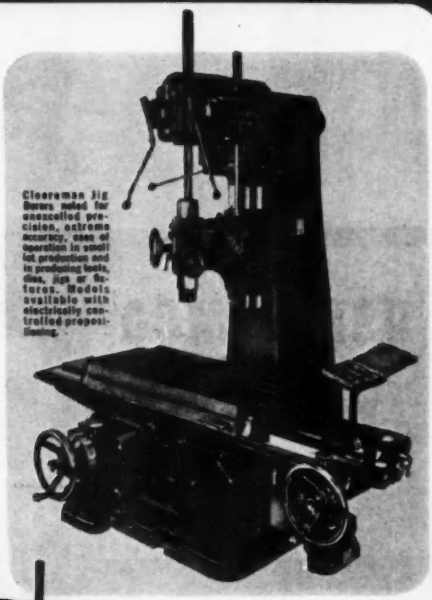
OF PRECISION JIG BORERS AND DRILLING MACHINES



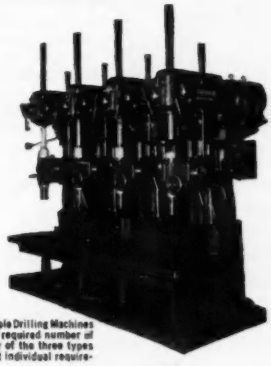
Cleereman Round Column Drilling Machines produce accurate holes at high speed and at low cost and are general purpose machines with high production.



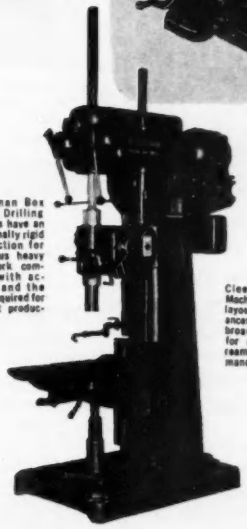
Cleereman Model 325 Single Unit Sliding Head Drilling Machines combine extreme sensitivity with rugged construction, are extremely versatile and may be used for production drilling and tapping.



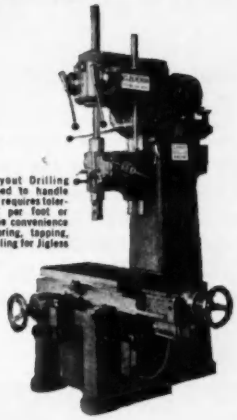
Cleereman Jig Borers noted for unexcelled precision, extreme accuracy, ease of operation in small lot production and in producing tools, dies, jigs or fixtures. Models available with electrically controlled preposi-tioning.



Cleereman Multiple Drilling Machines consisting of the required number of machines of any of the three types supplied to meet individual requirements.



Cleereman Box Column Drilling Machines have an exceptionally rigid construction for continuous heavy duty work combined with accuracy and the speed required for low cost production.



Cleereman Layout Drilling Machine designed to handle layout work that requires tolerances of .001" per foot or broader. Extreme convenience for drilling, boring, tapping, reaming and milling for jigless manufacturing.

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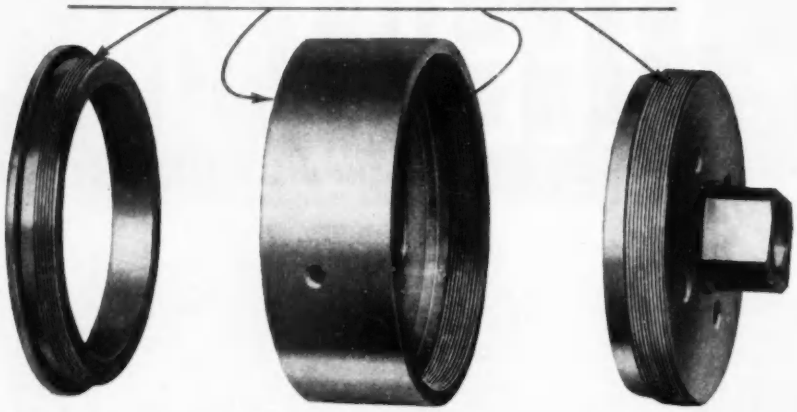
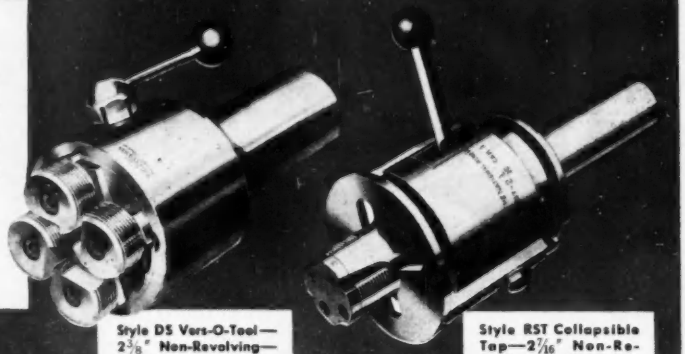
FOR COMPANION-FIT THREADS LIKE THIS:

ALL 40 PITCH... ALL CLASS 3 FIT



USE NAMCO TWINS LIKE THESE:



Style DS Vers-O-Tool—2⅜" Non-Revolving—with ground-thread circular chasers.

Style RST Collapsible Tap—2 7/16" Non-Revolving—with ground-thread blade chasers.

First, look at the diameters of this precision job. They're turned from 2½" brass and aluminum bars.

Then look at the pitch and the fit—40 pitch, class 3.

The natural companions for such companion-fit work are the Namco threading twins, the Vers-O-Tool Circular Chaser Die Head and the Namco Collapsible Tap—both precision built, both properly balanced to maintain production on large lots.

The exclusive Namco micrometer gauge method of checking thread form permits instant-quick chaser change after regrinding, without disturbing the set-up. Continuous, uniform, uninterrupted production is assured—and you'll get 5,000 or more threads per grind.

Cut production time, cut tool costs, cut reject losses—with these Namco Vers-O-Tools and Collapsible Taps. Ask for Catalog D-51—or send us your "specs."

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During the ASTE Show, the week of March 17, come in and see our display at 559 West Washington Blvd., Chicago.

LIGHT as aluminum — WEARS like iron

Unretouched photo of VANASIL piston

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Do your owners have rings break because of badly worn grooves, causing a breakdown on the road and a costly tow-in job as well as lost time and an engine overhaul? *Vanasil Pistons reduce top ring groove wear up to 75%!*

You Get ALL these Advantages only in

VANASIL PISTONS

Patented Vanadium — Silicon — Aluminum Alloy

1. **LIGHT WEIGHT**—Same as other aluminum alloys.
2. **SCORING, SCUFFING MINIMIZED**—Because of "Oil-absorbing" microscopic porous texture.
3. **LONGER LIFE** — 30% less friction — 30% harder, outwears other aluminum alloys several times.
4. **TOP RING**—Breakage virtually eliminated because of reduced ring groove wear.
5. **LOW EXPANSION**—Characteristics of Cast Iron.
6. **CLOSE CLEARANCES**—Fitted with Cast Iron Clearances.
7. **SOLID SKIRT DESIGN**—No expansion devices required.
8. **HIGH HEAT CONDUCTIVITY**—Similar to other aluminum alloys.
9. **GRAIN GROWTH**—None.
10. **PLATING**—No tin or other break-in coating required.

MICRO-X VANASIL "OIL-ABSORBING" PISTONS

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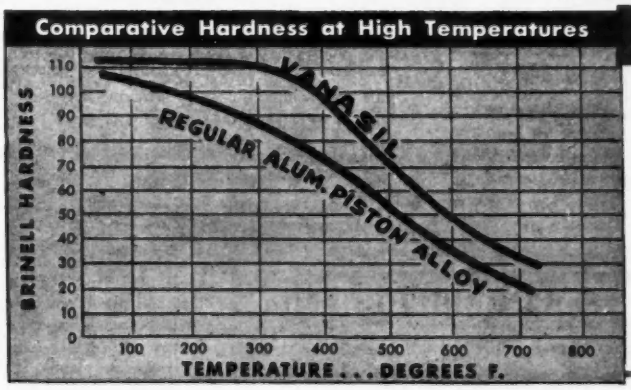

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Please send circular and prices on Vanasil Pistons in 44 types and sizes for gasoline and diesel engines.

Our trucks are.....

Name.....

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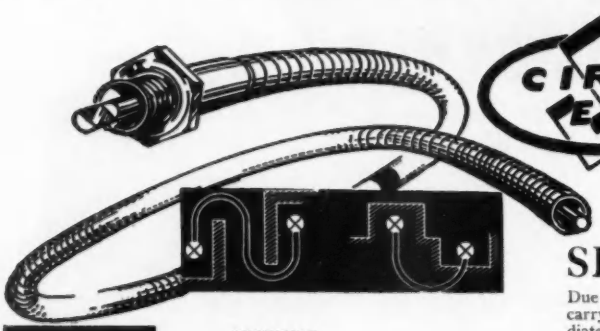
REDUCE YOUR NUMBER OF PARTS

and Permit a Logical Grouping of Working Units



Flexible

SHAFT ASSEMBLIES

Due to our wide experience in developing flexible shafts for carrying power around any corner, we can give you immediate help in solving your alignment problem. Circle Ess Flexible Shafts are today serving in the machinery, electronics, automotive, and aircraft industries where, in numerous cases, many new problems were solved.

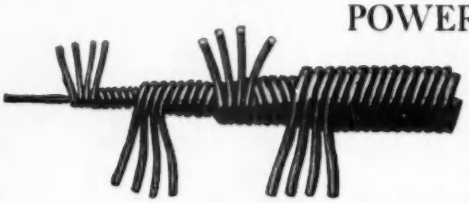
FLEXIBLE SHAFTING MADE IN STANDARD SIZES OR TO YOUR SPECIFICATIONS

•

It is not necessary for you to use expensive arrangements of mitre gears, universal joints, spur gears, and other space wasting constructions. The answer to simplified arrangement, inexpensive, efficient performance, is in the transmittal of power around bends with Circle Ess Flexible Shafts.

Mechanical and electrical controls may be placed in a position for economical yet highly efficient construction and still be operated from a readily accessible point through use of a flexible shaft assembly.

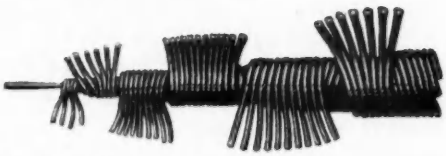
POWER DRIVE SHAFT



This shaft is used in transferring power around corners and under or over necessary obstacles. It has many advantages over the solid shaft—it eliminates mitre gears, bevel gears, universal joints, and the costly production time that is spent in aligning solid shafts. Pictured is a section of Power Drive Flexible Shafting showing construction of superimposed layers of wire wound in opposite directions.

REMOTE CONTROL SHAFTS

This type is used when a driven element needs to be moved only a fraction of a turn or several complete turns. Also used when it is necessary to both rotate and reciprocate, such as the opening and closing of valves. The designer is free to place the controls of a product in a position that is centrally located and accessible. Picture shows construction of superimposed layers of wire wound in opposite directions.



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We wish to extend to every plant executive and plant engineer, the facilities of our engineering department so that they may have the full use and benefit of the vast amount of practical Circle Ess data which has been compiled over many years. Our engineers, with specialized experience, are ready to help you in selecting the proper material for your needs and should it be necessary, our complete laboratory facilities are available to test your equipment to obtain design data.

Write for our book "FLEXIBLE SHAFT ASSEMBLIES"

F. W. STEWART MFG. CORPORATION

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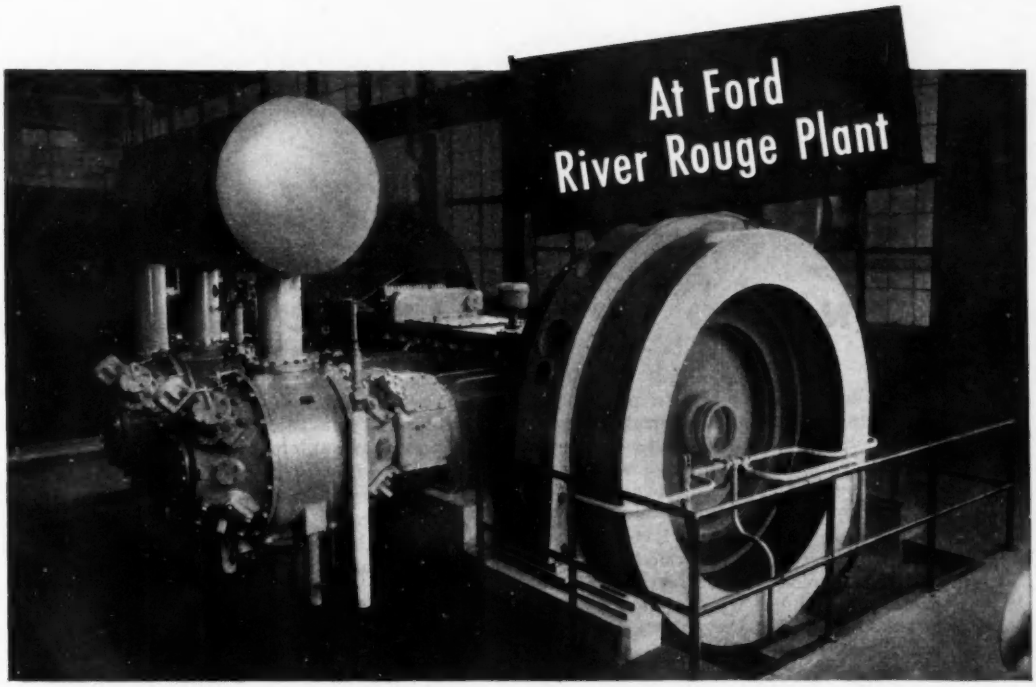
It has valuable information for all automobile and other manufacturers where power drives or remote controls are required.



25% more compressed air ...half the floor space

This is the 2000 bhp Clark CBA-4, Balanced/Opposed, Motor-Driven Compressor of 10,000 cfm capacity which Ford Motor Company recently added to its River Rouge Plant. Duty: To shoulder the increased load requirements of its 105 psi air system network.

Aside from the fact that Ford is getting 25% more air out of this rugged Clark unit, in approximately one-half the floorspace required by any of the older units in service . . . besides the savings in time and manpower gained through simplified installation in *days* rather than *weeks*, Ford is on the "plus" side in many other important respects. Among them: Vibrationless operation, achieved by Clark Balanced/Opposed Design; simplified, reduced foundation requirements; inherent accessibility and marked simplicity of design.

Covering a range of 150-4500 bhp, the Clark Balanced/Opposed, Motor-Driven line is increasingly becoming industry's preference for plant air requirements. Complete details and literature are obtainable from your nearest Clark representative.

SEE the difference in . . .

CLARK

CLARK BROS. CO., INC.

One of the Dresser Industries

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MIDGET ANGLE • RIGHT ANGLE • BIG ANGLE
ELECTRIC-DRIVEN • CENTRIFUGAL

Balanced/Opposed COMPRESSORS

Offices in Principal Cities throughout the World

a Decade

OF UNITED SPECIALTIES COMPANY

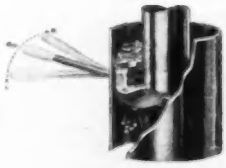
THE flood of new post-war products following 1945 brought radical changes in automotive designs. United's air cleaner division met this challenge with highly specialized air cleaner innovations, while also stepping up volume to well over two and a half times pre-war levels. In addition, in 1951 United expanded its horizons with the production of stainless steel television shells by the new spinning method, and is today one of the leading shell producers.

United's Mitchell division also ran head on into a tremendously expanded post-war demand for its products — particularly for new turn signal switches, which are now being manufactured in large numbers for cars and trucks. Today with added floor space and facilities, ignition switches, fabricated television parts, overhead door channels and automobile rolled shapes are being manufactured in increasing volume.

Another milestone in United's growth is reflected in the acquisition of the Birmingham, Alabama, plant. With completely modern facilities for manufacturing *in* the South *for* the South, our Birmingham operations are turning out both air cleaners in quantity and a line of metal toys.

During the past decade United, as a manufacturer of automotive specialties, has kept abreast of the latest developments in the field . . . as a pioneer in new fields it has exhibited the curiosity and alertness vital to a concern's continual advancement.

Complete range of metal shapes; cold rolled, drawn and pressed.



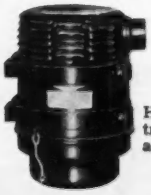
Concealed-type turn signal switch. Signal is self-cancelling.

Conventional-type Mitchell ignition switch used on popular makes of cars and trucks.

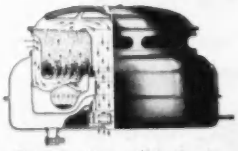
This air cleaner protects diesel engines in truck, tractor and industrial power units.

Popular style truck air cleaner mounted directly on air horn of down draft carburetor.

Mitchell clamp-on and screw-type semi-automatic turn signal switch used in cars, trucks, busses.



Heavy-duty truck oil bath air cleaner.

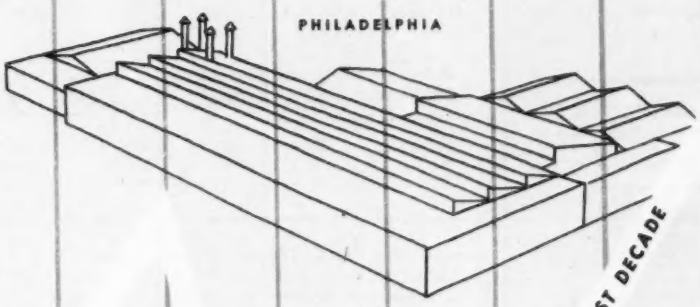


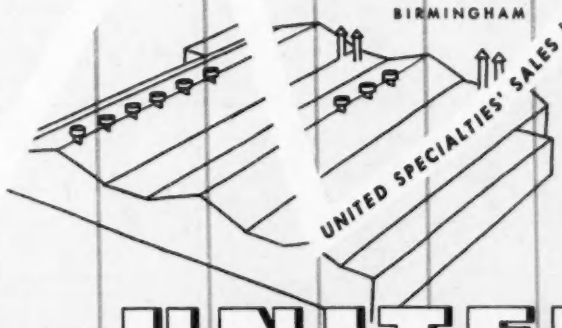
Combination oil bath air cleaner and silencer for use on down draft carburetors.

Gasoline engines used on tractors, combines and other agricultural implements are protected by this standard type United Oil Bath Air Cleaner.

Plastic oil bath air cleaner for small engines. Cleaning action visible to user.

DEVELOPMENT





UNITED SPECIALTIES' SALES IN THE PAST DECADE

14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000

'42 '43 '44 '45 '46 '47 '48 '49 '50 '51

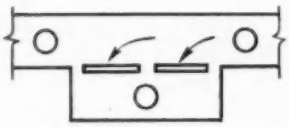
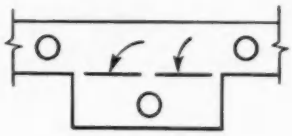
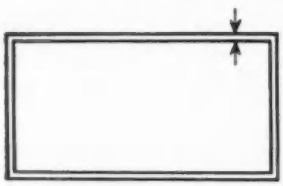
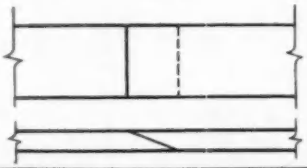
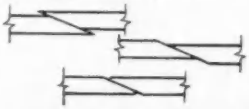
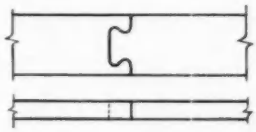
UNITED
SPECIALTIES COMPANY

Chicago 28 • Birmingham 11 • Philadelphia 36

Television picture tube spun metal shell. Available in 16-inch round and 17-inch, 21-inch and 27-inch rectangular models.

(*Advertisement*)

How to remedy common errors in gasket design

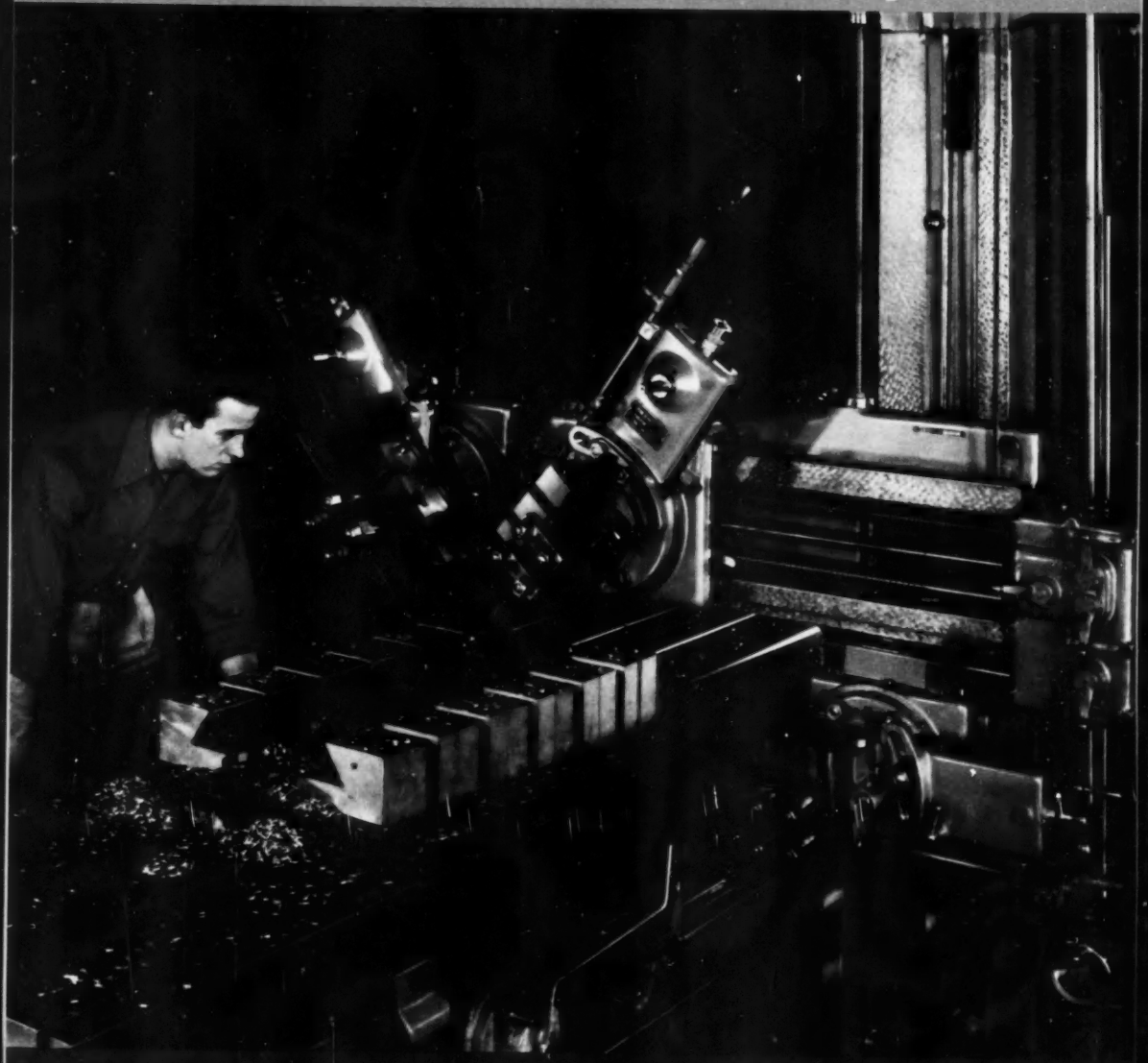
The fault	The reason	The remedy
Tear-away parts with open slots at attached edges. 	Centers from such slots may require hand-picking. Also, such holes involve more costly dies and increased die maintenance. Extra inspection, too, is usually required.	Use a simple perforation. 
Narrow walls on large gaskets. 	Gaskets so designed break easily during stripping and are often stretched and distorted in transit. Furthermore, such gaskets demand careful handling during assembly. Also, choice of gasketing materials is restricted to high tensile strength materials.	Make a tentative choice of gasket material while the joint still is on the drawing board. Then the joint may be designed to meet the requirements of both the completed unit and the probable sealing material.
Large gaskets made in sections with beveled joints. 	Such gaskets require extra skiving and glueing operations. Even then it is difficult to obtain a smooth even joint without steps or transverse grooves. 	Use a die-cut dovetail joint. 

You'll find other helpful information on the design and use of gaskets in "Armstrong's Gasket Materials." This 24-page manual discusses subjects such as designing gaskets to reduce cost . . . designing flanges for efficient sealing . . . the effect of surface condition on gaskets, and many others.

You'll find, too, up-to-date information on Armstrong's various sealing and friction materials. Included are government and SAE-ASTM specifications. See this manual in Sweet's file for product designers. For a personal copy, write Armstrong Cork Company, Gaskets and Packings Dept., 1503 Arch Street, Lancaster, Pennsylvania.

ARMSTRONG'S *Gasket Materials*

★ ★ ★ ★ 50th Anniversary ★ ★ ★ ★



ROCKFORD MACHINE TOOL CO.

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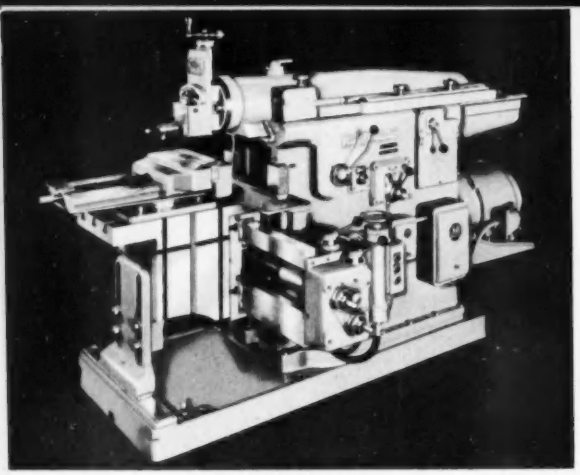
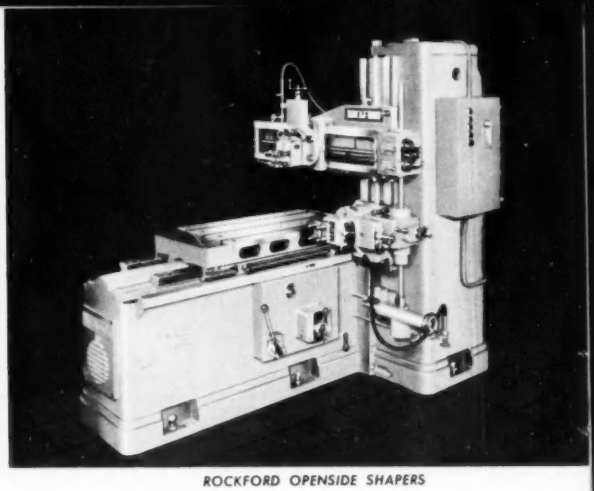


ROCKFORD SHAPERS



ROCKFORD OPENSIDE SHAPERS

HYDRAULIC *Machine Tools* 1952

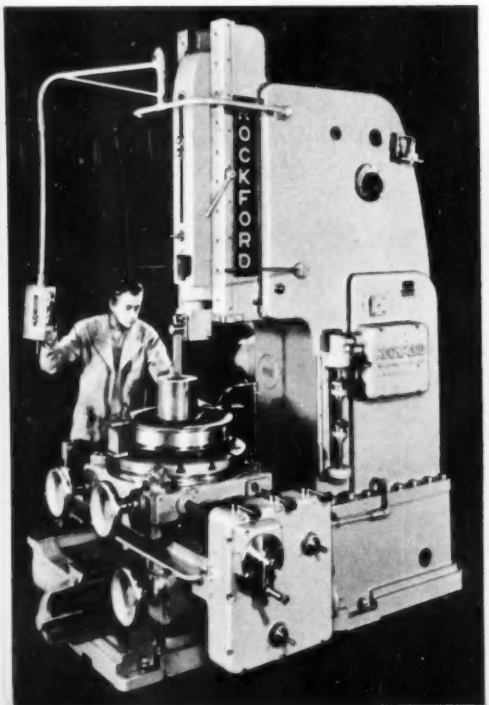
Fiftieth Anniversary

- **Simplified Controls**
- **Infinite Feeds and Speeds**
- **Quick Set-up for Fast, Low-Cost Machining**

50 years of machine tool building have brought many changes in design and efficiency. One of the major improvements has been the application of Hydraulic Drive and Feeds to Shapers, Planers, Slotters and Shaper-Planers.

Time-tested in every type of industry, Rockford Hydraulic Machine Tools, as well as Rockford Hydraulic Kopy-Kat Duplicators offer you the maximum in efficiency and economy for faster, lower-cost shaping, planing, slotting, turning and duplicate form-machining.

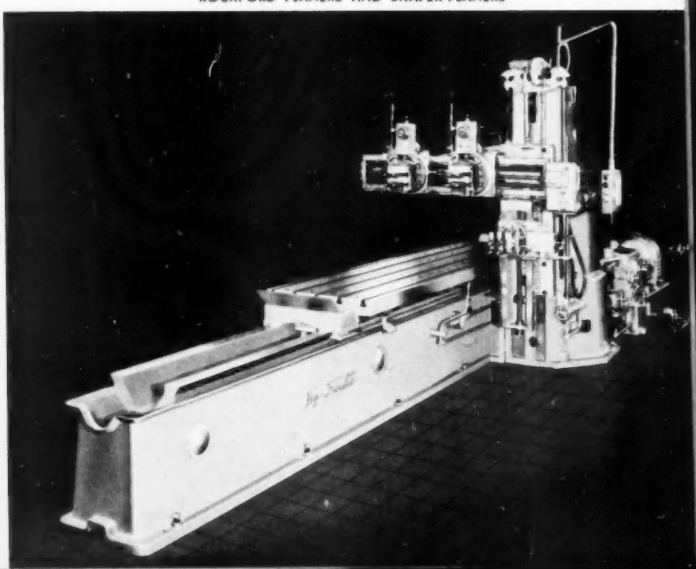
ROCKFORD SLOTTERS



ROCKFORD MACHINE TOOL CO.

ROCKFORD, ILLINOIS

ROCKFORD PLANERS AND SHAPER-PLANERS



Legs for lethal eagles

Legs for lethal eagles – hydraulic landing gear that cushion Uncle Sam's big bombers as they come down to roost – this is just one of the many uses of OSTUCO Tubing by manufacturers in the progressive aircraft industry. Aircraft designers are specifying OSTUCO Tubing for fuel lines, engine mounts, landing gear, and many other applications because of its inherent strength without weight characteristics and the ease with which it can be machined, formed and fabricated to the most exacting requirements.

But whether your products are aeronautical or of a distinctly different nature, you owe it to your future to investigate the advantages of OSTUCO Tubing for improving quality and reducing cost.

We cannot always promise early delivery estimates on new civilian orders, because of military demands, but it will pay you to consult our experienced engineers about OSTUCO Tubing when redesigning your products to meet future competition.

From Your Blueprint . . . to Your Product
OSTUCO TUBING
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Upsetting • Expanding • Reducing • Beading
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Threading • Angle Cutting • And Many Others

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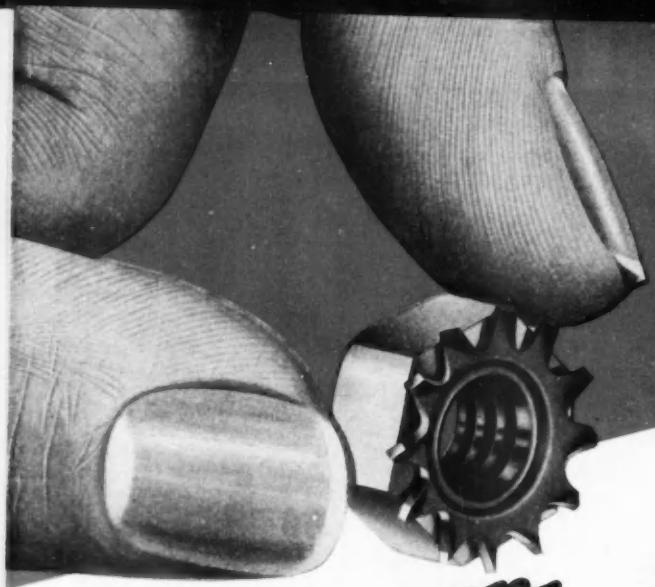

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TRADE MARK

. . . PRE-ASSEMBLED NUTS AND SHAKEPROOF® LOCK WASHERS

Get these important benefits now!

IMPROVED QUALITY — every nut is positively locked against vibration loosening!

INCREASED PRODUCTION — KEPS start easily and spin freely on the bolt!

FASTER DRIVING — tedious, costly separate lock washer handling is completely eliminated!

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DIVISION OF ILLINOIS TOOL WORKS

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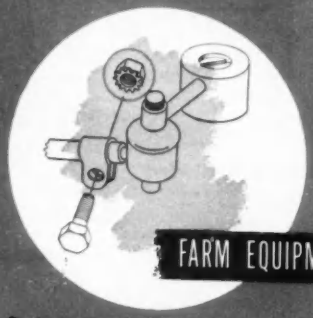
In Canada, Canada Illinois Tools Ltd., Toronto, Ont.

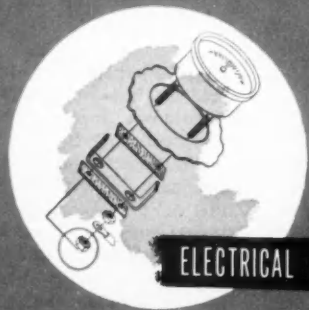
AUTOMOTIVE

KEPS are used here, together with SHAKEPROOF Molding Clips, to hold an ornamental molding strip in place. Because every nut is protected against vibration loosening with a pre-assembled SHAKEPROOF Lock Washer, KEPS are ideal for applications of this type.



FARM EQUIPMENT

On this tractor steering connection, subject to severe operating vibration, the positive locking feature of KEPS is particularly important. Further, because the lock washer can't drop off or get lost, servicing operations are greatly simplified.



ELECTRICAL

As in this ammeter terminal connection, KEPS are used in all types of electrical assembly. The pre-assembled SHAKEPROOF Lock Washer bites deep into the clamping surfaces to provide positive, efficient electrical contact.

FREE SAMPLE KIT FOR TESTING

Send for yours today!

One Way to Ease the Alloy Situation

"Boron is used in steel for one purpose only—to increase the hardenability; that is to increase the depth to which the steel will harden when quenched." — The Metals Handbook of the ASM.

An acute shortage of alloying elements exists because the nation has been producing steel at record-breaking rates, and because the present military aircraft program demands steels of much higher alloy content than were needed in World War II.

One way to ease this shortage appears to be a broader understanding and acceptance of boron steels. These steels are now being used effectively to replace many of the rolled constructional alloy grades, where hardenability is the chief consideration. Boron is readily accessible, and when used in extremely small quantities it increases the hardenability effects of the other alloying elements.

Boron also provides certain added advantages. It reduces the percentage of the other elements needed, and thereby improves the cold-working quality of the steel. It also improves machinability to some extent.

If you are considering the use of boron steels for any purpose where you formerly used high-alloy steels, get in touch with Bethlehem. Our metallurgists will advise you as to analyses and proper heat-treatment.

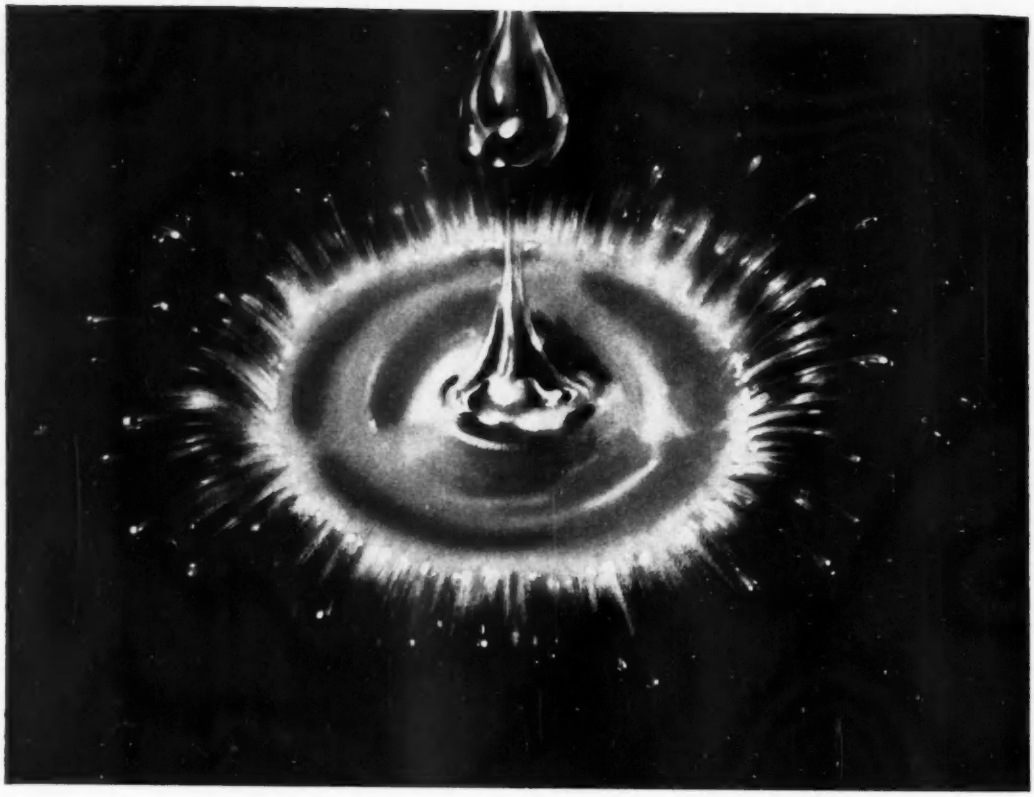
We produce boron steels as well as regular alloy, special, and carbon steels.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM ALLOY STEELS

BETHLEHEM STEEL

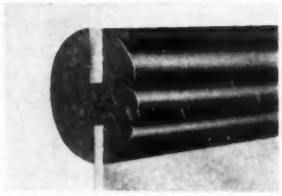


Just look at that drop of water!

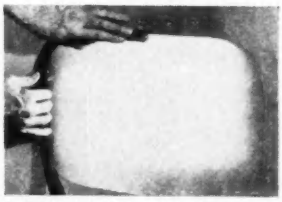
A single drop. But look at the impact, the splash, the driving force! Then multiply it by the millions of drops that strike windshields and fixed windows. And add the blast of air that hits a speeding vehicle. No wonder that ordinary sealing methods, with cement or binders, *will leak!* But *not* Inland Self-Sealing Weather Strip, using only the natural resilience of rubber, permanently compressed!

It cuts vehicle-production cost because installation is a fast, one-man job. And vehicle users also save time and money when replacing broken glass. Design and build your vehicles to take Inland Strip.

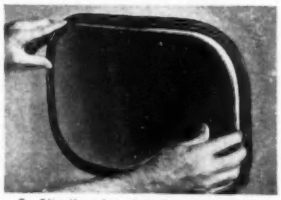
INLAND MANUFACTURING DIVISION
General Motors Corporation • Dayton, Ohio



1. Cross-section of Inland Weather Strip.



2. Set the Inland Strip in the body panel.

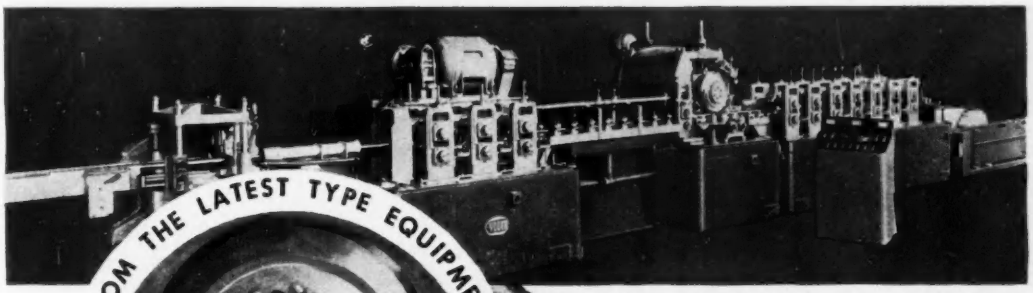


3. Slip the glass into the Inland Strip.

4. Zip the filler strip into the channel.

INLAND MANUFACTURING

Self-Sealing Weather Strip
(PATENTED)



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ELECTRIC RESISTANCE WELDED STEEL TUBING

TWO PRODUCTS DIRECT FROM MILL TO YOU

The weld tests stronger than the base metal

1 STRAIGHT TUBING

FABRICATION. Achieved by use of only flat-rolled steel coils meeting strictest physical and metallurgical specifications—formed on the newest equipment shown above.

CHARACTERISTICS. It has uniform strength, weight, ductility, concentricity, and weldability. It can be expanded, flanged, tapered, swaged, headed, upset, forged, flattened, spun closed, fluted and rolled.

RANGE. Gage .035" to .083"
Diameters ½" to 2½"
Random mill lengths
or as specified.
Round only

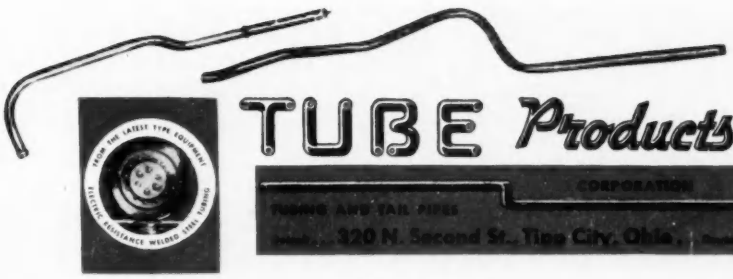
ADVANTAGES. Economical direct shipments from mill to you on quantity orders.

Straight lengths for smooth fast fabrication in your plant. Its extra strength and ductility takes easier bending with no danger of structural collapse or weakening, reduces rejects, avoids production delays, and lowers costs to you.

2 EXHAUST & TAIL PIPES

Tube Products Corporation makes them for all kinds of automotive, airplane, and diesel engines: and ships direct to your assembly line or stockroom. We have been volume producers of these products since 1939. You'll find the product and service superior.

Write or phone your tonnage for our economical prices.



Here's a record...

that few have ever seen!

Ninety-nine out of 100 metallurgists and heat-treaters have not yet had a chance to see a continuous instrument record of the carbon in a furnace's carburizing gas. And probably not 99 out of 10,000 production men have seen such a sight.

But neither group is going to be unfamiliar with this advance for much longer, because this valuable information is now as easy to get as a temperature record. It comes from a Micromax Carbon Recorder, which is part of the brand new L&N Microcarb Control.

Already several dozen plants have ordered Microcarb equipment. Here and there a present user is letting his friends drop in for a peek. So, the Carbon Record will soon be pretty generally known to men who look for the modern way to cut carburizing costs or improve carburized parts.

Every metallurgist and heat-treater will probably have his own idea as to exactly what this instrument can mean in his plant. Technically, it shows only the percent of active carbon in the atmosphere of a Homocarb Furnace; but practically, it shows the surface carbon content of the parts being carburized! Used with Microcarb Control, it means that "the carbon you set is the carbon you get." You can control the surface carbon, regardless of whether you want a shallow or deep case; on familiar steels or the newer alloys.

Only Homocarb carburizing equipment of our new Series H can be used with Microcarb, because the furnace and its temperature control must be designed to meet the needs of atmosphere regulation. Specific features are a soundly designed electric furnace with solid-bottom retort, improved fan housing and work support, and aerodynamically designed discharge jets. Micromax temperature control of the Duration-Adjusting Type is included.

The full Microcarb story will be mailed on request. Address either our nearest office, or 4966 Stenton Ave., Philadelphia 44, Pa.

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WITH Thompson DIE and PERMANENT MOLD CASTINGS for AIRCRAFT

Aircraft Piston

Air Connector

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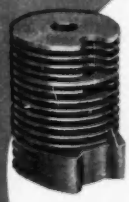

Carbon Pile Regulator

Alternator Housing

THOMPSON PRODUCTS has progressed with the automotive and aviation industries. Hard-to-make precision parts—that must be strong yet lightweight, must withstand extreme heat and require a minimum of machining and finishing—are specialties at Thompson Products.

Illustrated here are some of the products of Thompson's Light Metals Division—high pressure die and permanent mold castings that have aided aviation advance.

Ferrous castings are being replaced by more efficient light alloys of aluminum and magnesium. Thompson's creative engineers will gladly put their many years of experience to work for you by showing where and how you, too, can simplify your operations with light metal castings and save on costs.

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LIGHT METALS DIVISION

Found... A SIMPLE FORMULA FOR BIGGER PROFITS—

X = PRODUCTION TIME *Savings*

X = PRODUCTION COST *Savings*

X = PRODUCTION FAILURE *Savings*

X = *Standard* X-WASHERS

Range of X-WASHER sizes immediately available for pin diameters from 1/16 to 5/16 inches in diameter. STANDARD grooved pins are made available for all sizes of STANDARD X-WASHERS or to your specifications. Send your print for a prompt quotation.

This revolutionary fastener in many cases provides greater thrust strength, yet it is more easily, more quickly applied than inefficient old-type fasteners.

With only a pair of pliers the STANDARD X-WASHER is clinched to a perfect 360° closure . . . easily removed with the same simple plier operation.

Cut your production time and production costs to the minimum . . . cut production failures . . . demand STANDARD X-WASHERS —the "proven" figure in the formula for BIGGER PROFITS!

—1001 APPLICATIONS—

WARNER AUTOMOTIVE PARTS DIVISION—BORG-WARNER CORPORATION says "The efficient installation of the STANDARD X-WASHER on our truck power take-off units makes for an improved product. Since the X-WASHERS are easily removed, disassembly for repairs and service can be done in a minimum amount of time."

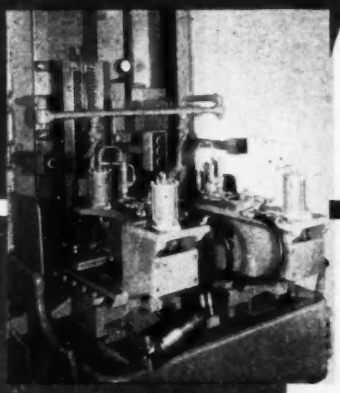
The AMERICAN MACHINE & FOUNDRY COMPANY, Buffalo, N. Y., says, "In the manufacture of our AMF Automatic Pinspotter, an automatic device for setting bowling pins and returning the bowled ball, the X-WASHERS play an important role. Our assembly superintendent has found that the ease of installation makes it a very good production item. This feeling is shared by our Engineering Department as shown by the number of uses made of the X-WASHER."

Write for Standard's Detailed Catalogue, today!

STANDARD Locknut and Lockwasher, Inc.
510 NORTH CAPITOL AVE. • INDIANAPOLIS 4, INDIANA

DEFENSE APPLICATIONS

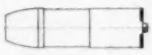
For Cincinnati Vertical Hydro-Broach Machines



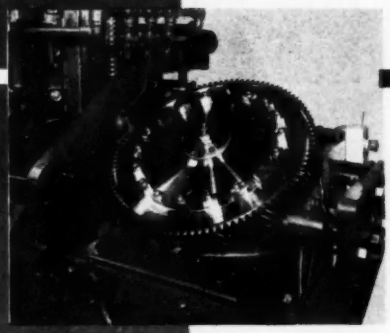
roaching gives you quick action in boosting production and lowering costs. This efficient method of machining should be employed wherever possible in the production of defense equipment items. Of course, a lot depends upon tooling, so if you need ideas write for our folder "How to Step Up Production with Cincinnati Hydro-Broach Machines," No. M-1599. And when you decide upon broaching, Cincinnati is your best choice. Our broaching specialists will be glad to help you with the application.

THE CINCINNATI MILLING MACHINE CO.
CINCINNATI 9, OHIO

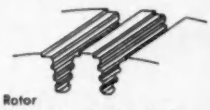
AUTOMATIC FIXTURES REDUCE EFFORT IN BROACHING KEY ON MORTAR SHELLS



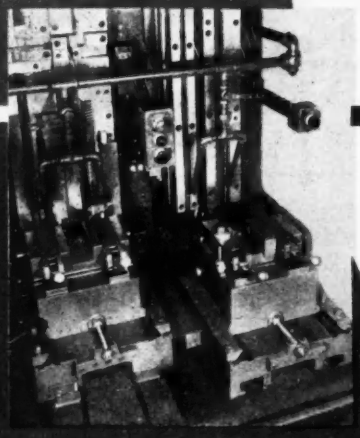
Part name ..... Chemical mortar shell
Material ..... Steel
Operation ..... Broach key on base
Stock removal ..... 1/16"
Production ..... 345 per hour
Machine ..... CINCINNATI No. 5-42 Duplex Vertical Hydro-Broach



BROACHING TURBINE BLADE SLOTS IN ROTORS



Part name ..... Rotor
Material ..... Heat-resistant alloy steel
Operation ..... Broach turbine blade slots
Stock removal ..... From solid
Production ..... Depends upon several variables. For the above material . . . on 66" stroke machine, 2 cuts, 1.38 minutes per slot; on 90" stroke machine, 1 cut, .9 minutes per slot
Machine ..... CINCINNATI Single Ram Vertical Hydro-Broach



ENTIRE PROFILE OF DETENT BROACHED IN FOUR PROGRESSIVE OPERATIONS

Part name ..... Detent
Material ..... Steel forging
Operation ..... Broach profile complete
Stock removal ... 3/32" average
Production ..... 98 per hour, completely broached
Machine ..... CINCINNATI No. 5-54 Duplex Vertical Hydro-Broach

CINCINNATI

MILLING MACHINES • CUTTER SHARPENING MACHINES
BROACHING MACHINES • FLAME HARDENING MACHINES
OPTICAL PRODUCTION GAGES • CUTTING FLUIDS

Don't Let "Castings Troubles" Slow Down Your *Defense Production*

• SPECTROGRAPHIC ANALYSIS

X-RAY INSPECTION

ZYGLO INSPECTION

Permite's Quality Control Assures You ALUMINUM CASTINGS *RIGHT in Dimensions-in Mechanical and Chemical Qualities*

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Write for your copy of new Bulletin No. 20A illustrating and describing our facilities for supplying the castings you want, when you need them.

Send blueprints for recommendations and estimates on your aluminum castings requirements.

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ALUMINUM PERMANENT MOLD, SAND and DIE CASTINGS...HARDENED, GROUND and FORGED STEEL PARTS

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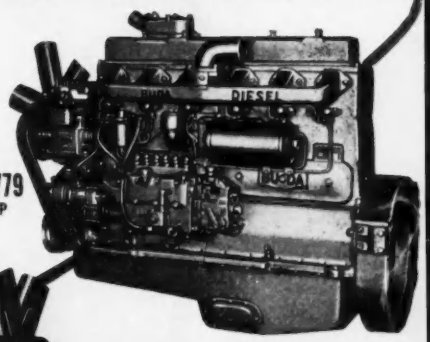
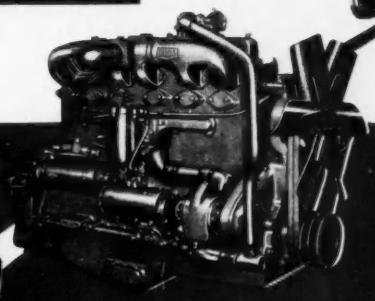
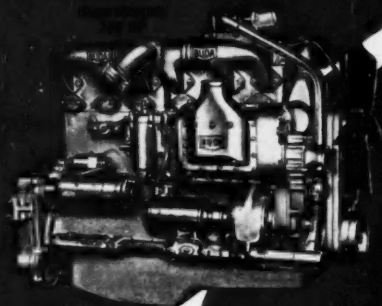
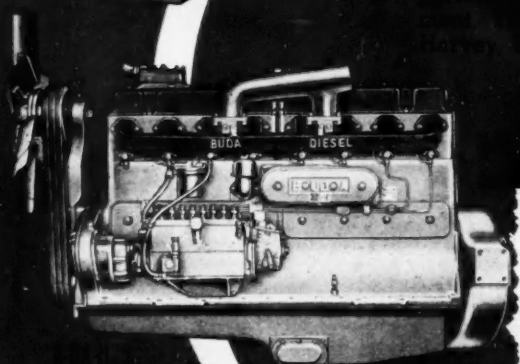


6-DA-779
185 HP







MODEL	Bore and Stroke	Displ. Cu. Inches	Max. Torque @ RPM	HP At Max. Speed
8-DAS-1125*	5¼x6½	1125	1040@1450	350@2100
8-DA-1125	5¼x6½	1125	800@1100	287@2100
6-DAS-844*	5¼x6½	844	780@1550	280@2100
6-DA-844	5¼x6½	844	650@1300	215@2100
6-DA-779	5¼x6	779	540@1400	185@2100
6-DTS-468*	4¼x5½	468.3	370@1550	152@2500
6-DT-317	3⅝x5⅛	317.4	222@1500	91@2500
6-BD-273	3¾x4⅛	273	197@1350	75@2400

*Supercharged

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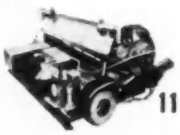

(1) S-600 Janitrol heater for wing tip pods of new Douglas C-124A; also the heart of the F-4 portable ground heater, with radiant tube providing twice the heat in half the space. **(2) S-300** on DC-6, DC-6A, DC-6B, and new DC-7, features low ventilating air pressure drop, dual ignition. **(3) S-125**, now used in C-124, Constellation 649. **(4) S-100**, workhorse of the Janitrol line in the last war, on DC-4, C-46, C-54, JD-1, Grumman "Mallard" T-28, C-124, new Constellations. **(5) S-200**, in use on C-119, C-120, and Super DC-3, is adaptable to jet fuel operations. **(6) S-50** serves variety of uses on C-125, F4U-5, F7F-3, F-51, SB2C. **(7) S-25**, weighs only 12 lbs., used in Navy fighters for gun heating. **(8) V-15**, mighty midget, weighs 6 lbs., fits practically anywhere for heating cockpit, guns, instruments, windshield, etc. **(9) F-4**, 400,000 Btu/hour Janitrol portable heater, ideal for ground comfortization of aircraft, engine preheating, instant heat for semi-enclosed work areas, shelter heating, parachute drying, ventilation in summer. **(10) T-20**, house trailer heater. **(11) Janitrol liquid heater** (gasoline or oil fired) for pre-warming, starting, or standby heat with diesel or other engines on vehicles or stationary applications. Proven in 5 years of service on diesel coaches, now serving many special vehicles.

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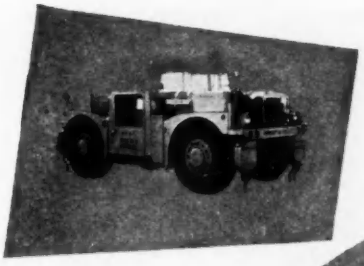
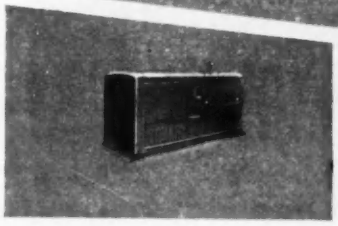


TO PUT *heat* WHEREVER YOU WANT IT

Whenever a hot aircraft story breaks, chances are that Janitrol is in the picture. For one thing, Janitrol makes a complete line for commercial and military aircraft, ground vehicles and stationary engines. Janitrol portable heaters, now serving in scores of applications for engine warmup, shelter heating, etc., incorporate the same time-proven dependability of Janitrol aircraft heaters. And rounding out the line are Janitrol liquid heaters, whose performance on tow tugs, fire-fighting crash trucks, fuel trucks, and diesel transit coaches points to new applications on a wide range of diesel or gasoline engine powered equipment . . . Whether you build, operate, or maintain equipment that calls for heat, call in your nearest Janitrol representative. He's a good man to know.



Janitrol

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a "mechanic's eye view" shows why TOWMOTOR *costs less to maintain*

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You'll find all those "mechanic's" features in Towmotor. And wherever you put your Towmotor to work, you can be sure of obtaining genuine, *packaged* Towmotor replacement parts, to keep your Towmotor on the job year in and year out. Towmotor Corporation, Div. 45, 1226 E. 152nd Street, Cleveland 10, Ohio.

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NATIONAL OIL SEAL LOGBOOK

Reprints from this or other Logbook pages are available for your files. Request them from our Redwood City, California office

Seals safeguard pressure lube system in air compressor crankshaft

Gardner-Denver Model WB Air Compressors employ a simple and practical pressure system to lubricate the crankshaft bearings. Oil seals are used to safeguard bearings and insure efficient operation of the pressure system.

In these compressors, lubricating oil is introduced under pressures ranging from 20 to 45 pounds. Operating temperatures reach 130°F, and shaft speeds of 870 rpm are maintained continuously.

The lubricant is introduced at the forward main bearing (Figure 1). It passes from the end plate through a brass oil-introducing ring, and on to a rifle-drilled crankshaft. The oil-introducing ring is kept from turning by a snap ring, and is hydraulically balanced in position by oil around the crankshaft.

National Oil Seals installed in the end plate prevent leakage or loss of lubricant, help maintain lube pressure and the balance of the oil-introducing ring.

Oil seals used in this application are National 50,000 series spring-loaded units (Figure 3). Sealing members are of Nationalized leather, impregnated to retain shape and resist wear. Here, as elsewhere in Gardner-Denver units, standard design seals are used. In many cases, standard designs can solve sealing problems quickly and economically. In other cases, special designs are necessary. Whatever the need, National Oil Seal Engineers bring 25 years of sealing experience to your problem. Write or call the nearest National office for prompt assistance.

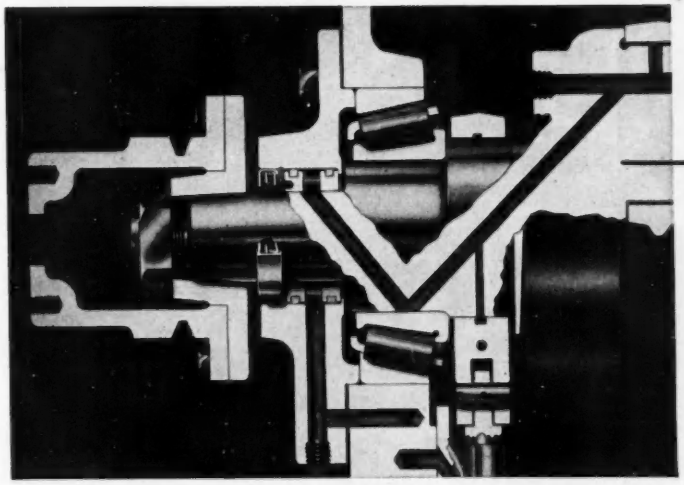

Fig. 1 Oil introducing assembly

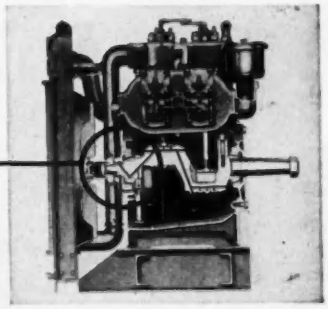

Fig. 2
Gardner-Denver Model WB Air Compressor

Fig. 3 National 50,000 series oil seal

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Plants: Redwood City, Calif.; Downey (Los Angeles County), Calif.; Van Wert, Ohio

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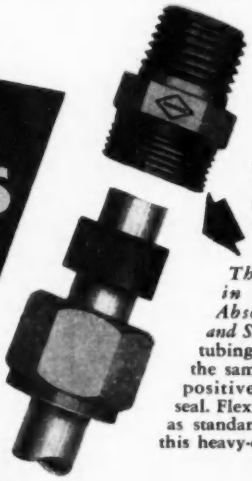
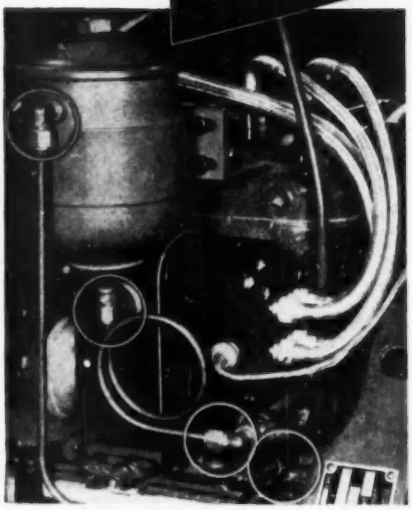
May Be the Answer

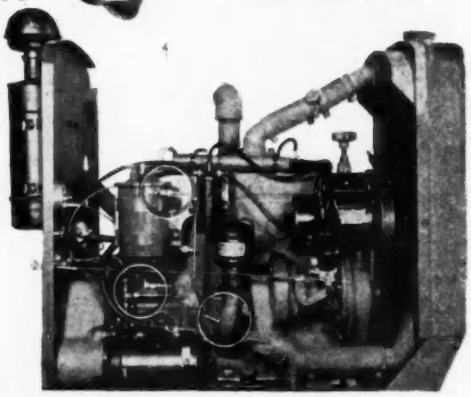


The tube coupling with vibration and shock absorbing sleeve.

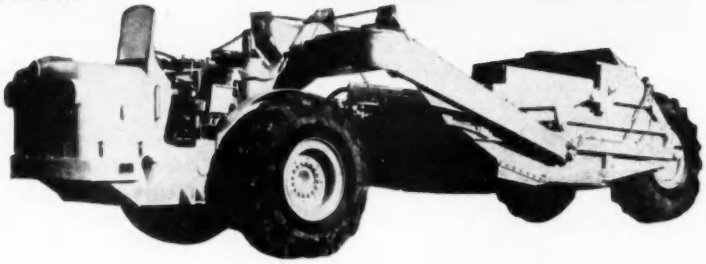
This Elastic Sleeve in Flex Fittings Absorbs Vibration and Shock . . . permits tubing to flex and at the same time assures a positive pressure tight seal. Flex Fittings are used as standard equipment on this heavy-duty engine.



Flex Fittings make joints virtually indestructible by VIBRATION . . . withstand SHOCK and MINOR TUBE MOVEMENT



Flex Fittings, circled on this engine, are very easy to install . . . simply slip nut and Flex sleeve over tubing . . . insert tubing into body as far as it will go and tighten nut—that's all.



Whether it's earth movers (illustrated), tractors, diesel engines, heavy power equipment or machinery, Flex Fittings will do the job. They have been thoroughly proved by extensive use.

Flex Fittings Can Be Used With All Kinds of Tubing

Imperial Catalog 344 gives you complete information on Flex Fittings. Ask for your copy.

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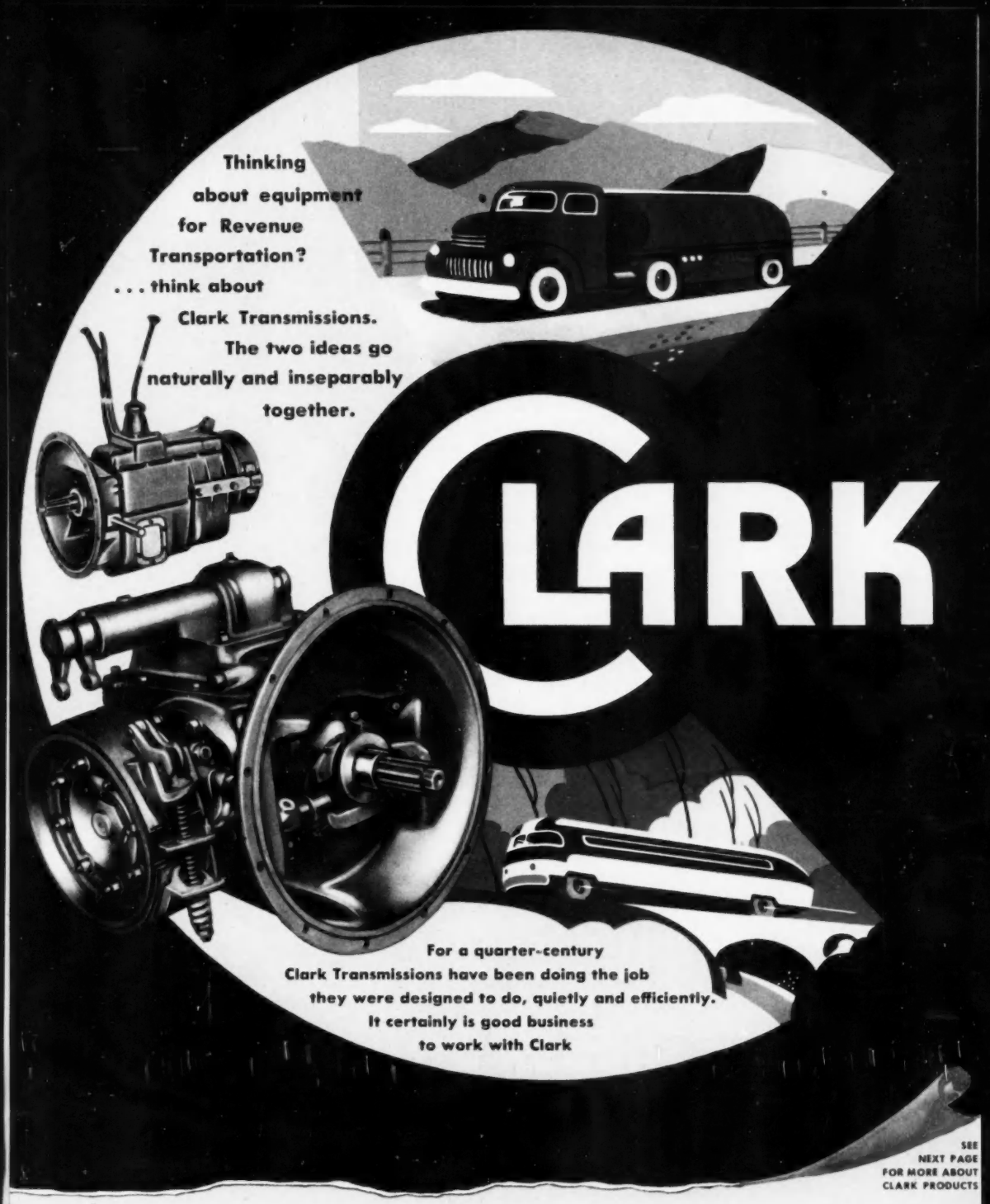

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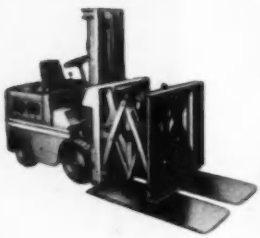

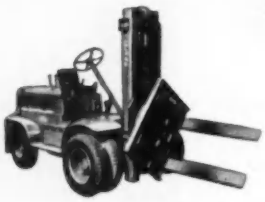

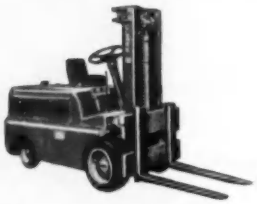

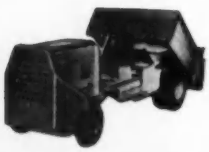

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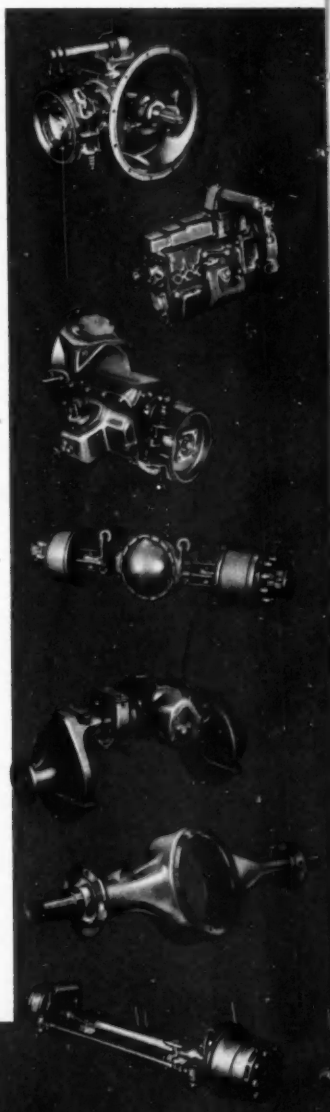
In the Automotive Industry the name CLARK is an accepted symbol of fine engineering and quality construction—in axles, transmissions and drive units for motor trucks, buses, farm tractors and agricultural and industrial implements.



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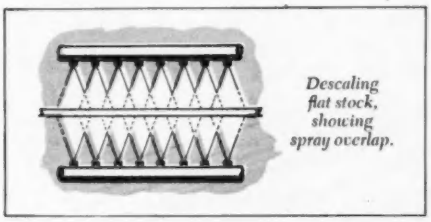
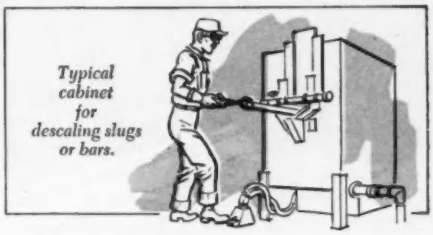
SCALE which forms when metal is heated during production can become a problem if it is not properly removed. Scale can affect the size, weight and quality of your finished product. Scale can cause unnecessary wear on your cutting tools, punches, dies and machinery.



Descaling flat stock, showing spray overlap.

Effective descaling need not be a slow, costly manual or mechanical process. With hydraulic descaling you can efficiently knock off scale with high velocity jets of water in a matter of seconds!

The heart of the hydraulic system is the pump which delivers the high pressure water. The BJ Hydropress pump is ideal for this type of work because of its unique construction features. It does not require relief valves, accumulators or extra heavy fittings and piping. Its double volute design creates inherent balance at all heads and capacities.



Typical cabinet for descaling slugs or bars.

Its vertical construction allows the use of a simple foundation and a minimum of floor space.

For more information on how BJ may solve your pumping problems, call your local BJ sales engineering office today!

BJ HYDROPRESS PUMPS ARE YOUR ANSWER

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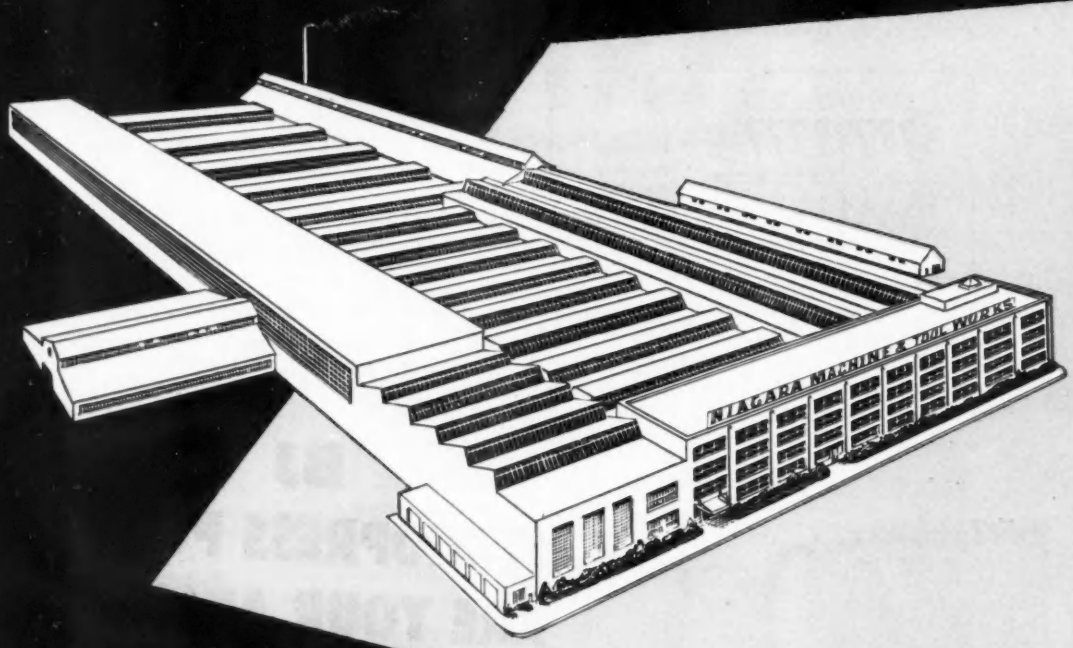

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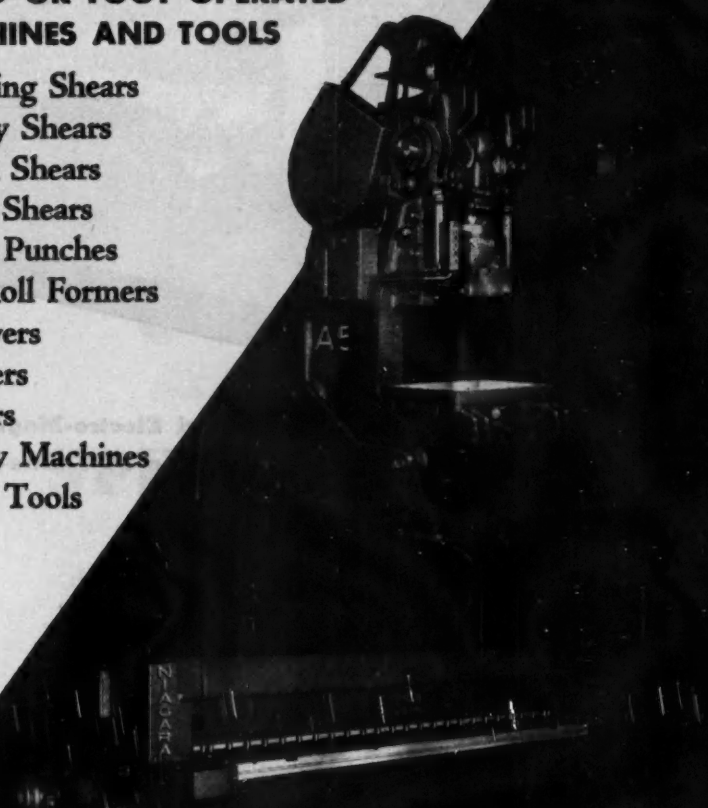

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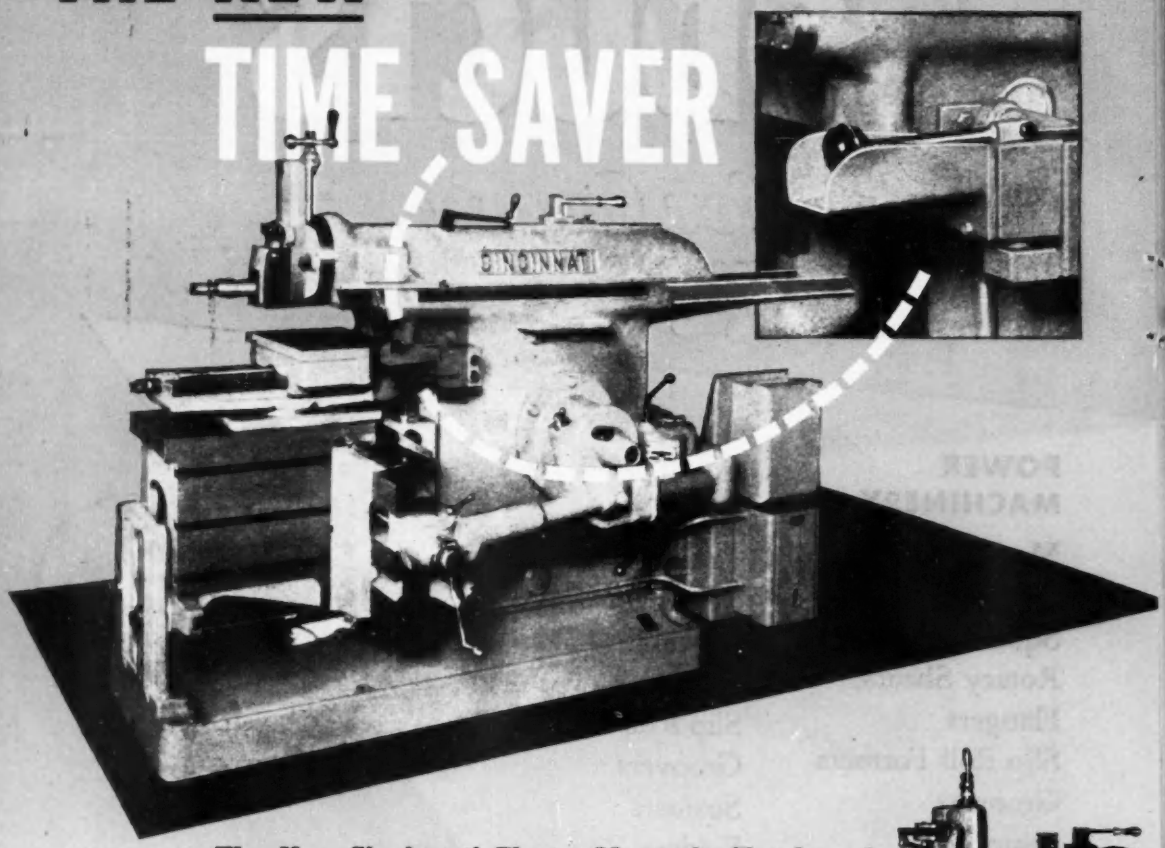
THE NEW TIME SAVER



The New Cincinnati Electro-Magnetic Clutch and Brake alone brought a 30% time-saving here. . . .

Starting and stopping are always non-productive, but where starts and stops are numerous and cutting time is a very small part of the entire work cycle—they become a serious time waster!

The New Cincinnati Magnetic Clutch and Brake, with its single, convenient control lever, converts waste time into productive time. It gives the operator the fastest, simplest and most accurate control of his Shaper.

This powerful clutch and brake requires no shutdown for adjustment, and has a long, maintenance-free life, time-saving and profitable features.

Write for Catalog N-5 for the complete line.

The time required to shape 7 separate internal oil grooves in these steel sleeves was reduced from 12.5 minutes to 8. minutes, due to the Cincinnati Electro-Magnetic Clutch and Brake.

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FLEXIBLE HOSE LINES

WITH DETACHABLE, REUSABLE FITTINGS

Always first
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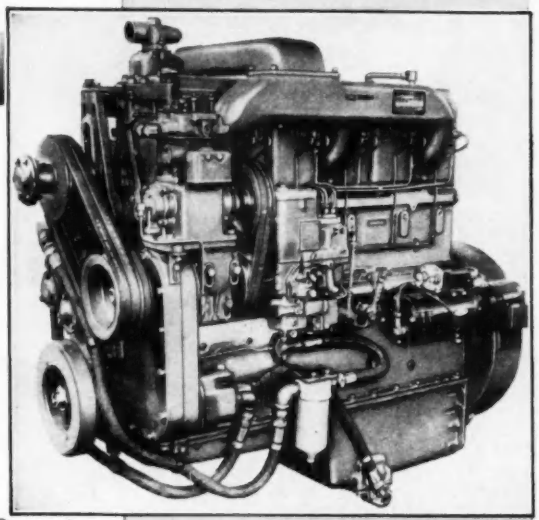

Save time, save money and reduce inventory by putting the "Aeroquip Idea" to work for you. With Aeroquip you make your own flexible hose assemblies by cutting bulk hose to desired lengths and attaching Aeroquip Reusable Fittings. Assembly can be accomplished quickly and easily right on the job. No special tools are required. No training is needed. Aeroquip high quality Flexible Hose Lines improve performance and reduce maintenance. They eliminate leaks due to vibration and operate dependably at extremely high or low temperatures. They are widely used for hydraulic fluid, water, air, lubricating oils, gas and Diesel fuels and many other fluids.

Always first

B.D. Check into this money-saving idea—Jo

Because this Diesel Engine is plumbed with Aeroquip Flexible Hose Lines, replacement of any fluid-carrying line can be accomplished in a fraction of the time required for forming and fitting rigid tubing. Aeroquip Hose Lines are fire resistant and eliminate failure due to vibration.

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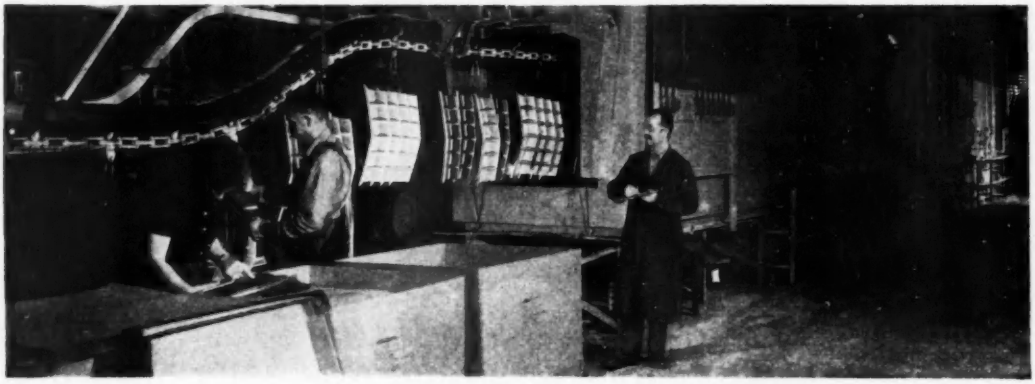

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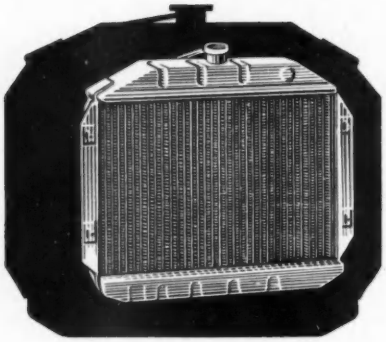
Substitution of materials is of considerable concern to many manufacturers these days. Never before have we seen so much interest in the subject. However, it is by no means new to Revere, which has always held to the principle of recommending the metal that will best serve the customer. Thus, we have often suggested switching from one metal or alloy to another, with the object of lowering costs, increasing production, improving service, or all three.

When based on a detailed study of all the factors involved, substitution at times can be extremely valuable. In fact, the ever-increasing quality and service to be found in American products is due in part to the continued search for better materials, and their adoption when found. Better materials, better design, finer workmanship—these are part of American progress.



But there are instances, of course, when no practical substitute can be found, when only one material offers just the right combination of good qualities required for a given application. Take the automobile radiator. This has always been made of copper, because copper is the one and thus far only metal that perfectly meets all the requirements of manufacture and service. To make a radiator, very thin copper sheet and strip must be crimped, bent and otherwise formed. Copper's easy workability makes it ideal from the manufacturing standpoint. After assembly, the radiator is cleaned, and made water-tight by dipping in a bath of hot solder. Copper is exceptionally easy to solder. When in service on a car, truck or bus, the radiator must not rust, and must resist corrosion by water and anti-freeze. Copper is notable for its resistance to corrosion in such use. The radiator must also cool the water by radiating its heat into the air stream; copper has the highest heat conductivity of all commercial metals. A copper radiator thus is the most efficient and durable. It should outlast the car unless accidentally damaged, and when the injury is not so great as to make replacement necessary, the nearest shop can make repairs easily.

Recently it has been suggested that automotive radiators should be made of aluminum. However, both copper and aluminum are temporarily in short supply, and therefore to substitute one for the other does not appear to be practical. Beyond that, we do not believe —based upon experience to date—that aluminum's qualities, fine though they are, necessarily make it suitable for automotive radiators. In addition, the difficulties of retooling in the factory and repairs in the field must be considered. Revere fabricates both copper and aluminum, and we have reason to believe that our impartial advice to stay with copper for automotive radiators is concurred in by radiator manufacturers.

When you are tempted to substitute one material for another in your product, no matter what it may be, make certain you obtain all the facts as to costs, production, service. Your suppliers will be glad to collaborate with you in studying the effects of a proposed change. We suggest you take full advantage of their knowledge and experience.

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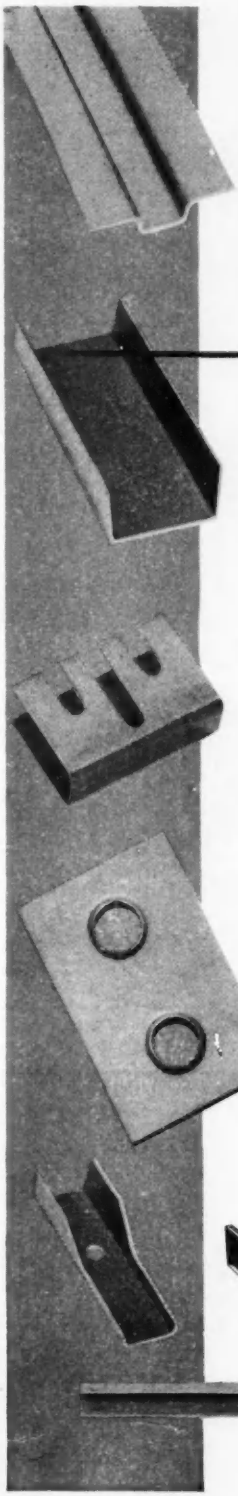

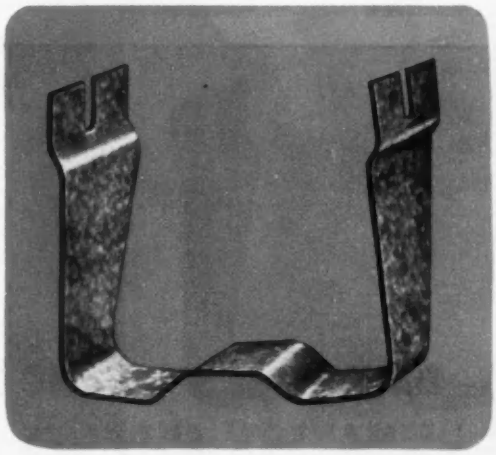

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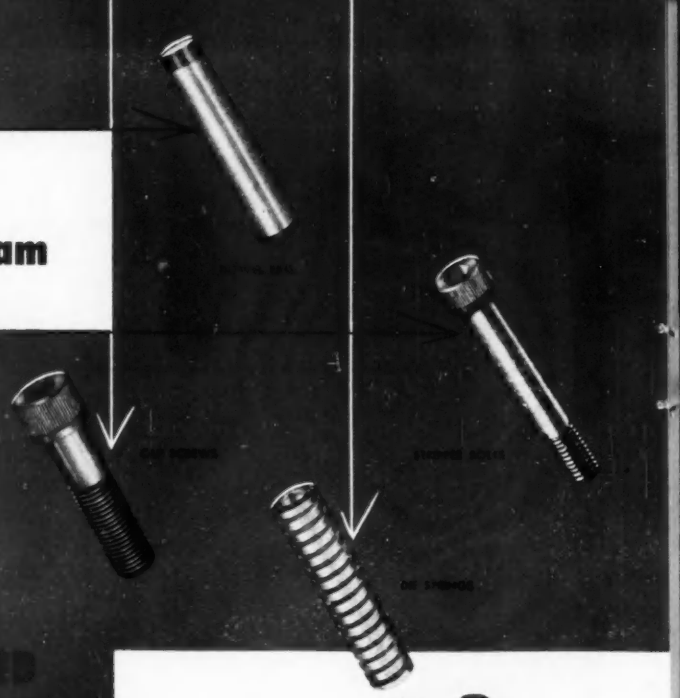

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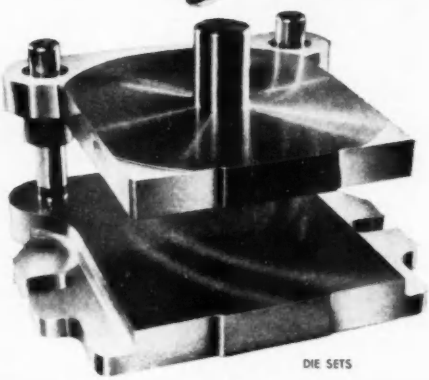

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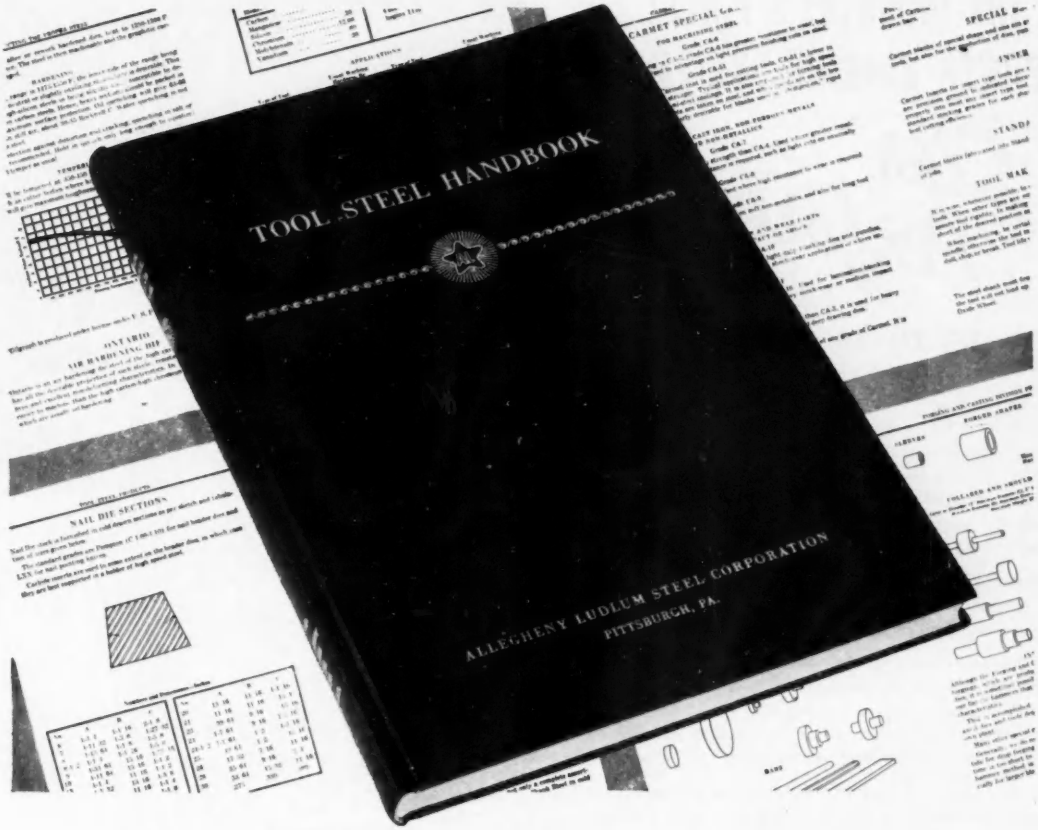

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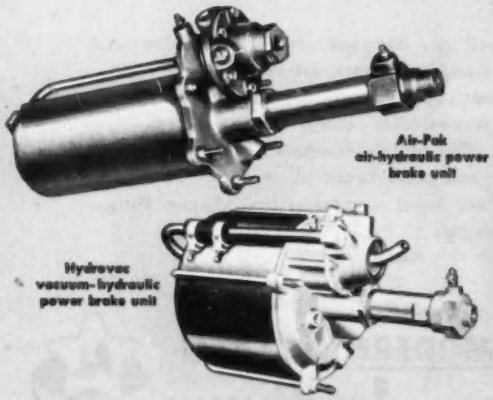

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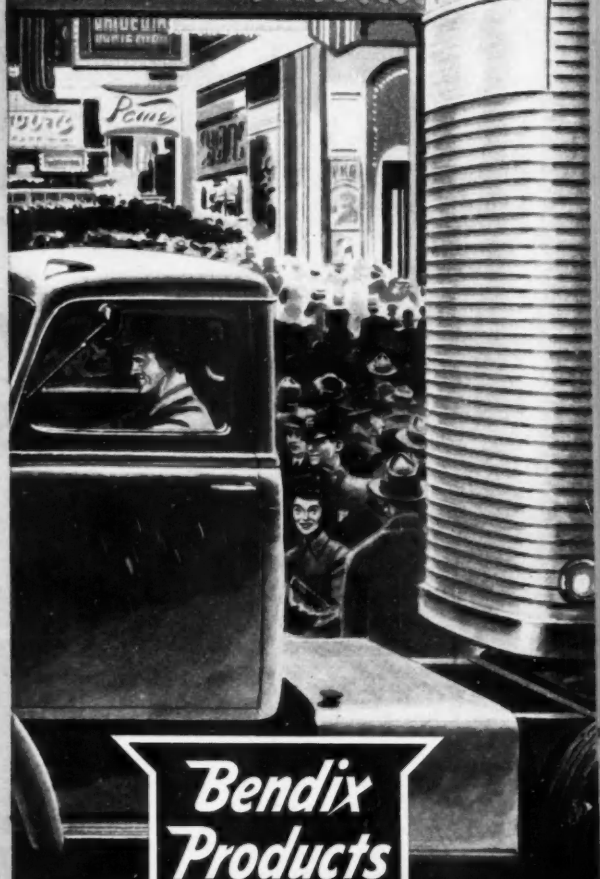

BRAKING HEADQUARTERS for the AUTOMOTIVE INDUSTRY

Bendix Products Division

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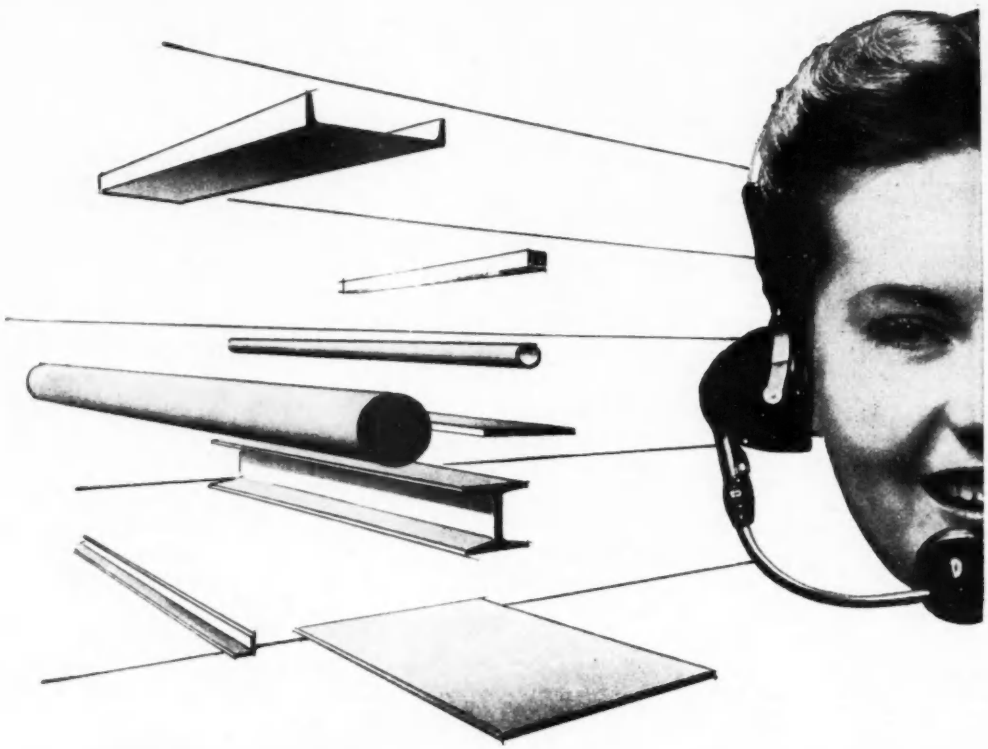

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News of the AUTOMOTIVE AND AVIATION INDUSTRIES

Vol. 106, No. 6 **March 15, 1952**

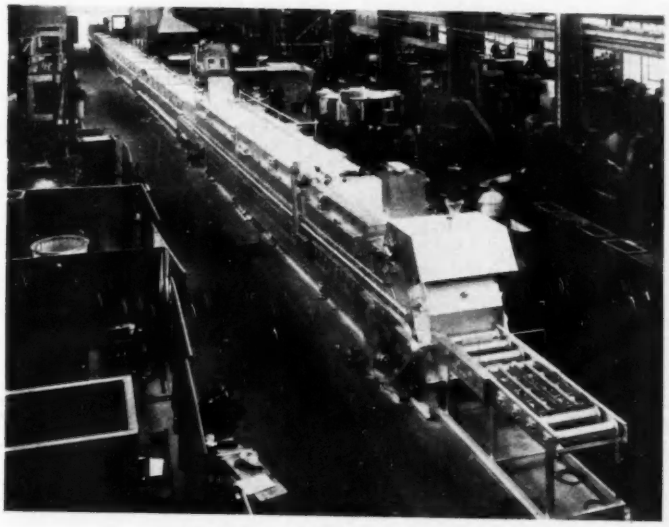
Fisher Gives History of Bullard Contract

Cancellation of the Government contract calling for production of Bullard vertical turret lathes by Fisher Body Div. of General Motors Corp. was entirely satisfactory, according to John J. Cronin, GM vice president and general manager of Fisher. In a clarification statement he outlined the history of the contract from time of the original negotiations with the Air Force Procurement Office and Bullard officials in early Feb., 1951. The Air Force, in March, 1951, set the quantity of machines at 1000 units, and the following month it certified to OPS the urgency of Fisher's part in the Bullard program and recommended price control exemption. Five days later the number of machines was reduced to 757.

After three months of negotiations on pricing, costs, and availability of tools, Fisher received a letter order from Bullard to build the lathes as a subcontractor at an estimated price of $75,000 each, a figure which was subject to review and re-determination of profits. The $75,000 price included appreciable pre-producton costs to cover tooling and processing for production of an initial quantity of the lathes, in which considerable subcontracting by Fisher was involved.

Bullard, as prime contractor, added $15,000 to the Fisher price to cover "selling expense and know-how." Tooling and pre-production charges were to be absorbed on the initial order of lathes, and Fisher's price on any subsequent production would have been adjusted downward to exclude these elements.

On Jan. 24, after several months of intensive work and planning, and only six weeks before production was to start, General Services Administration issued a hold order, and the contract was cancelled a few days later.



STUDDED BRAZING FURNACE

A method developed by Nelson Stud Welding Div., Gregory Industries, Inc., to eliminate drilling, tapping, and hand-welding in the assembly of industrial furnaces was used by Lindberg Engineering Co. in producing this special 191-ft brazing furnace for an automobile manufacturer. More than 5000 threaded studs were used to secure cover plates for access and clean-out doors; eight granular, flux-filled studs were employed to secure each of the 200 rollers on which pressed steel parts are conveyed through the brazing process; and small studs hold cover plates over electric heating connections.

Plastic Auto Body Announced by Glasspar and U. S. Rubber

Commercial production of a low-cost plastic automobile body was recently announced jointly by Glasspar Co., Costa Mesa, Calif., and Naugatuck Chemical Div., U. S. Rubber Co.

The body, which is said to be dent-proof and rust-proof, is constructed of Naugatuck Chemical's Vibrin polyester plastic and layers of glass fiber. It is claimed that the combination, for its weight, is stronger than steel. The body is of custom sports car design and sells at a price of $650. It is being produced by the Glasspar Co. and is available to persons who want to mount it on a chassis purchased separately.

The body is currently available in one design which fits a frame with a 100-in. wheelbase. As production increases, Glasspar expects to make available a variety of body styles to fit frames of various sizes. The body, molded in one piece, is said to be approximately .2 of an in. thick and to weigh only 185 lb with appreciable strength and resiliency.

It is claimed that the body will not dent under the punishment of accidents, and will spring back to its original shape after impact. Furthermore, although breaks are possible under heavy impacts, the material reportedly can be easily and cheaply repaired.

The first body produced has been mounted for demonstration purposes on a custom-built sports car consisting of a special frame and supercharged engine. The car will be shown to the public for the first time at the National Plastics Exposition, Philadelphia, Pa., March 11 to 14 after being driven across the country from the West Coast.

News of the AUTOMOTIVE

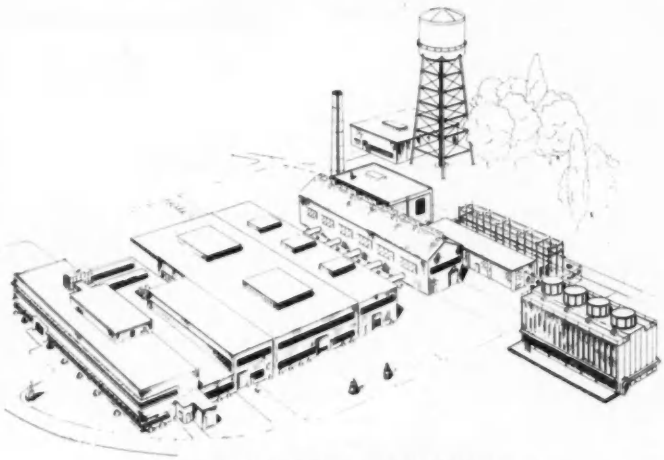
Chrysler Starts Work on Proving Ground

Chrysler Corp. has started work on its new 3800-acree proving ground near Chelsea, Mich., about 40 miles west of Detroit. Work on clearing and grading for secondary roads and preparation for a drainage system have been started. The company currently is using the facilities for testing Army tank developments as well as for limited passenger car and truck trials.

It is expected that work on testing tracks and obstacle courses will begin this spring. Plans call for a five-mile oval, high-speed track, two straightaway tracks, a 10½-mile endurance track, three inclines of seven, 15, and 32 per cent grades, and several mud, sandpit, and water trough courses. The oval track is 60 ft wide, and turns are designed so that the usual high banks are not required to permit high speeds with safety.

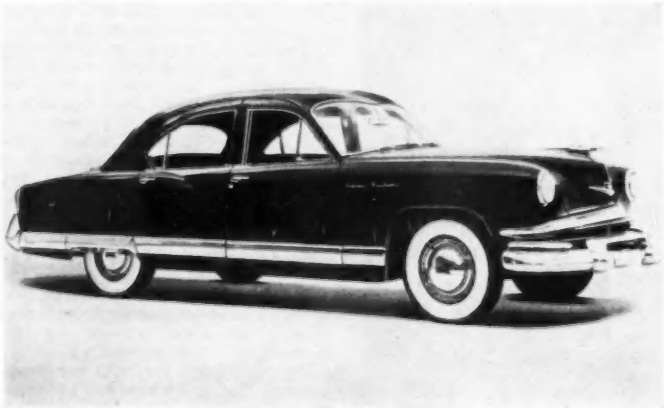
The endurance track, which circles the test area, will consist of alternate stretches of black-top, dirt, gravel, and mud roads. It will be used for testing the durability of transmissions, brakes, steering mechanism, suspension, and shock absorbers.

Two ¾-mile lengths of rough brick and Belgian block road are included in the network of roads. The straightaway test strips will be used to test effects of wind on car operation, effectiveness of brakes after exposure to water, performance of transmissions and engines from cold starts, and acceleration and fuel economy.



GE GAS TURBINE LABORATORY

Shown above is an artist's conception of the aircraft gas turbine research laboratory which General Electric Co. plans to build as part of its $30-million turbojet and turboprop center at Lockland, O. (see March 1 issue of AUTOMOTIVE INDUSTRIES, p. 12). Large building at left center contains laboratory annex, development accessory area, aerodynamics and mechanical activities, and combustion cell facilities. At right center is compressor building. Also shown are: cooling tower to chill water for laboratory use, power distribution station, heating plant, and water tower.



1952 KAISER SERIES

The DeLuxe and Manhatten (above) series, along with the previously announced Virginian, constitute the 1952 Kaiser line. The new models embody several changes in styling and appointments, such as a one-piece curved windshield. Optional dual-range Hydra-Matic drive is only major mechanical innovation.

Chrysler, GMC Military Truck Orders Increased

Chrysler Corp. and GMC Truck and Coach Div. of General Motors Corp. have received the major part of more than $206 million in new defense contracts awarded by the Ordnance Corps in the Detroit, Mich., area. Largest order was for $135 million to GMC to extend its production of 2½-ton six x six military trucks now being built at its Pontiac, Mich., plant.

Chrysler has received two additional orders, totaling $50 million, which extend production of ¾-ton cargo carriers, command utility trucks, and ambulances of the same types that Dodge Div. has been making for more than a year under three previous orders.

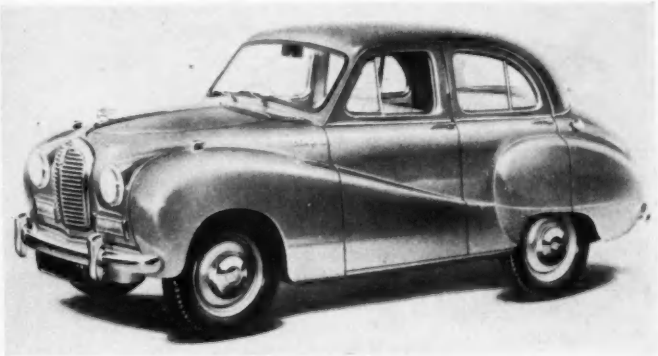
Oldmobile Div. also received three contracts, totaling more than $6.6 million, for additional production of rocket motors and heads and tank cannon tubes. Other contracts include: $9.16 million to Revere Copper and Brass, Inc.; $2.149 million to Masco Screw Products Corp., $2.436 million to Detroit Brass and Malleable Works, all for ammunition parts, and more than $1 million to Fruehauf Trailer Co. for tank trailers.

AND AVIATION INDUSTRIES

Kropp Forge Succeeds in Forging Titanium

Kropp Forge Co. recently announced it has succeeded in making bar forgings of titanium with excellent surface finishes and is turning them out in quantity, both for rearmament and industrial uses. The company's Research Div. has reportedly developed techniques for the production of titanium forgings in several shapes and designs. Its research program is being expanded, especially in the jet engine field, for which Kropp manufactures a sizable volume of components.

As part of its titanium program, the company is engaged in product development for the concerns marketing the metal, as well as in experimental work for firms interested in the final product, particularly in the aircraft and automobile fields. New and heavier hammers, one of 16,000-lb capacity and two of 20,000- and 35,000-lb capacity, respectively, have been installed and are expected to be turning out forgings for the defense program shortly.

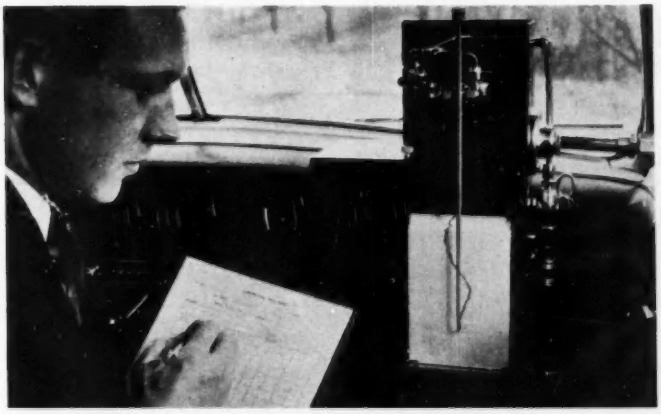


AUSTIN A40 SOMERSET

Austin Motor Co., Ltd., recently introduced the A40 Somerset as a successor to its A40 Devon. The two are basically alike with the same valve-in-head engine of 73.17 cu. in. installed in each. The power, however, has been increased from 40 to 42 hp at 4400 rpm, and the torque has been stepped up from 59 to 62 lb-ft at 2200 rpm. While the wheelbase remains unchanged at 92½-in., there is a small increase in the rear tread, total height has been reduced slightly, and 14 lb have been saved in the weight of the car.

Purolator Products Acquires Petroleum Accessories, Inc.

Purolator Products, Inc., recently announced acquisition of Petroleum Accessories, Inc., Detroit, Mich., manufacturers of large capacity fuel filters used extensively in the handling of aviation fuels. The acquisition reportedly will broaden the Purolator line and add to production facilities as well. Equipment is now being moved from Detroit to the Purolator plant at Ringtown, Pa.



ROBOT MOTORIST

A new gyroscopic ride recorder, designed to measure the smallest rolling, pitching, or zigzag motions in cars under test, has been developed by Chrysler Corp. Working parts consist of a small gyroscope, a spark coil, and a metal pointer which records any disturbances on a moving tape. Current from the car's electrical system operates the spark coil and drives the tape. The device was developed primarily to measure the effectiveness of various suspension systems in aiding smooth riding.

Packard 1951 Earnings Expected to Top 1950

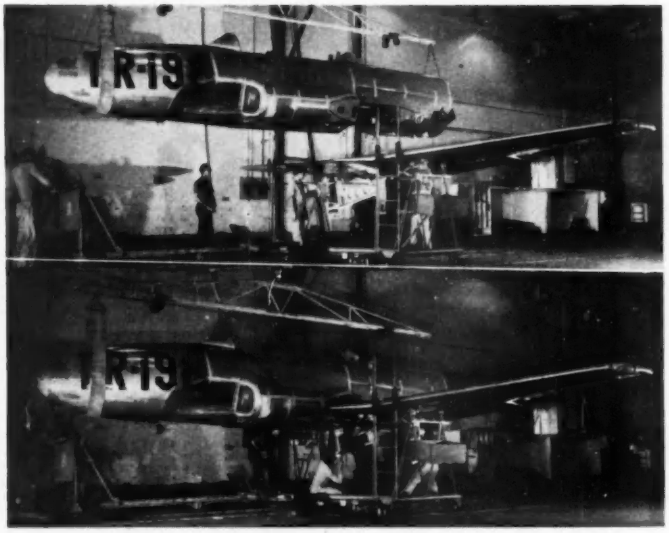
When final auditing is completed, figures are expected to show that Packard Motor Car Co. last year had earnings somewhat higher than the $5,162,348 earned in 1950. In a report to stockholders Hugh Ferry, Packard president, said that demand for the company's 1952 models has picked up substantially in recent weeks, particularly in the higher priced "300" and "400" models.

He added that the new parts warehouse at Utica, Mich., now is in full operation and that the jet assembly plant there is nearing completion and will be partially occupied late in March. Although the company's jet engine and marine Diesel engine have progressed into the initial production stages, it is believed that defense work will not have any substantial effect on earnings until much later this year.

Goodyear 1951 Sales Exceed $1 Billion

Goodyear Tire & Rubber Co. in 1951 had total sales of more than $1 billion, more than 30 per cent ahead of the previous year. The company's earnings also set a new record, totaling $36,628,000, compared with $35,109,000 in 1950. Goodyear's taxes last year also hit a record total of more than $152 million.

News of the AUTOMOTIVE



GROWTH OF A TRAINER

In the upper scene of this two-phase photographic story on the building of a Lockheed T-33 trainer, assemblers guide main fuselage section on to pre-assembled wing waiting in mating jig. Only 10 bolt fittings of .006-in. tolerance are required to lock wing to fuselage. The next step in the process (lower photo) is making dozens of hose, wire, and tube connections. Subsequent work will involve assembly of landing gear, attachment of tail section, and engine installation.

Steel Shipments in 1951 Exceeded Record of 1950

Finished steel products shipments in 1951 totaled 78,928,950 net tons, exceeding the 1950 record year by 6,696,658 tons, according to a recent report of the American Iron and Steel Institute. The distribution pattern shifted markedly in both products and markets to reflect defense activities, especially in the second half of 1951.

The markets that received a large part of the additional tonnage in 1951, as compared to 1950, were largely those influenced by the defense program. Shipments of steel to makers of ordnance and other military, increased 524 per cent, or 1,019,000 tons. Among other markets, influenced in varying degrees by defense activity, which shared heavily in the increased tonnage are: rail transportation, up 1,450,000 tons, or 33 per cent; machinery and tools, including electrical machinery, up 1,021,000 tons, or 19 per cent; and aircraft up 97,000 tons, or 190 per cent.

Due to the demand for steel in such markets, other markets show decreases or only moderate increases. Steel for the automobile field, for example, showed a decrease of 1,560,000 tons or 11 per cent.

Annual Wage Seen as Prime Demand of Auto Workers

It now seems certain that the principal demand of the UAW-CIO, when present five-year contracts in the automobile industry expire, will be a guaranteed annual wage. Walter P. Reuther, UAW president, said at a press conference recently that his union is making a detailed study of such a program for presentation to the automobile companies long in advance of contract reopenings in 1955.

He stated that the UAW's proposals will be completed by late this Fall and presented to automobile managements so that they can have ample time to study them. He would not elaborate on the union's arguments to support the proposal, but hinted that with labor now receiving hospital and medical plans, pensions, and cost-of-living and annual improvement factors, the addition of a guaranteed annual wage would assure manufacturers of a guaranteed annual market.

GM Scrap Drive Nets 4000 Tons in Month

General Motors Corp.'s dormant scrap program is still going strong. The latest 30-day figures show 4063 tons collected during the month to bring the total since the drive started last July to more than 45,377 gross tons of non-production scrap. The tonnage collected represents the weight equivalent of the iron and steel in 31,994 average cars.

Acme

JET PLEASURE PLANE

The "Sipa 200," a French jet-powered light touring plane, is driven by a turbo-jet engine and is reported to weigh less than a ton. Speed of the craft is said to exceed 200 mph with an expected range of between 300 and 500 miles.

AND AVIATION INDUSTRIES

Acme

GRUMMAN COUGAR

The F9F-6 Cougar, produced by Grumman Engineering Corp. for the Navy, is the swept-wing successor to the Grumman Panther. Powered by a Pratt & Whitney turbo-jet engine, the plane is said to be in the over 600-mph class. Basic armament is reported to be comparable with that of other Navy jet fighters.

Nash Designer Translates Style Concept Into Metal

Pinin Farina, European custom body builder and designer, who helped design the 1952 Nash and the Nash-Healey sports car, revealed his methods at a press meeting recently. In designing a new model, he works from a mental concept and forms the basic design in metal by working with hardwood hammers on a wooden form. He stated that he dispenses with drawings or scale and full-size models, and claimed that the prototype of the 1952 Nash was turned out in approximately two months from the time it was conceived.

The Farina factory, he reported, builds about 1000 custom models a year. Many of the cars are individually designed with a maximum of 200 cars of the same design. The cars usually sell for between $7000 and $12,000.

AIA Sees Higher Production Despite Plane Rescheduling

According to a recent report of the Aircraft Industries Association, production of military aircraft is increasing, despite the revised production schedule which has postponed target dates for the air power build-up some 18 months. AIA states that rescheduling eases the ultimate burden of the aircraft industry considerably. Furthermore, in order to have achieved previous schedules, a "business-as-usual" economy would have had to give way to a serious extent.

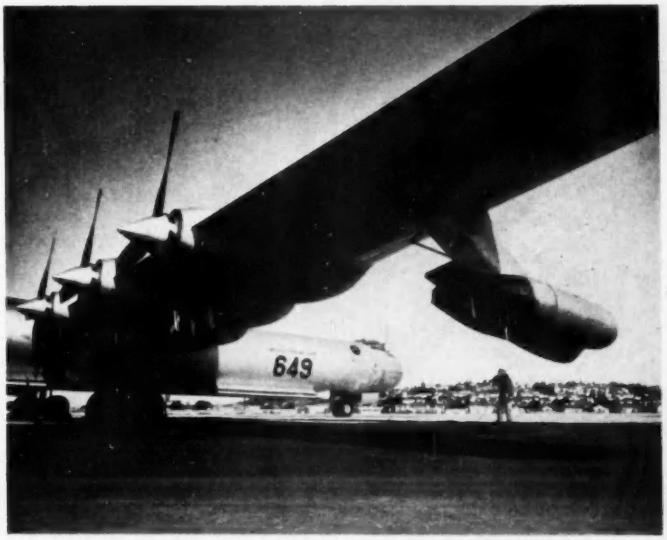
Bottlenecks which have plagued the industry for the past year show promise of giving way under increased production of basic materials and machine tools, according to AIA. Attention is directed, however, to the serious shortage of aircraft engineers and the insistent demand for skilled manpower. It is claimed that before the end of 1952, the total manpower of the industry will increase to about 750,000, as compared to current employment of some 600,000.

Industry Opinion on Materials Appears to be Rationalized

Evidence continues to mount that automobile industry officials were right when they told the Government last Dec. that military production schedules were unrealistic. There has been a considerable fuss over the so-called "rephasing" of the defense production program to extend it over a much longer period of time, ostensibly to give a larger share of materials to civilian industry and to relieve unemployment.

Actually, there is a strong belief in the industry that, whether the military program had been rephased or not, the

(*Turn to page* 79, *please*)



LAST B-36D CONVERSION COMPLETED

This plane, now designated as a B-36D model, is the last of the early piston engine powered B-36 models to be equipped with jet engines at the San Diego Division of Consolidated Vultee Aircraft Corp. With six 3500-hp Pratt & Whitney piston engines, the four General Electric J-47 jet engines bring the total horsepower to about 42,000. The current production model, the B-36F, has a total horsepower of more than 44,000.

Mr. Basic Bearing has quite a Wardrobe

With One Shield

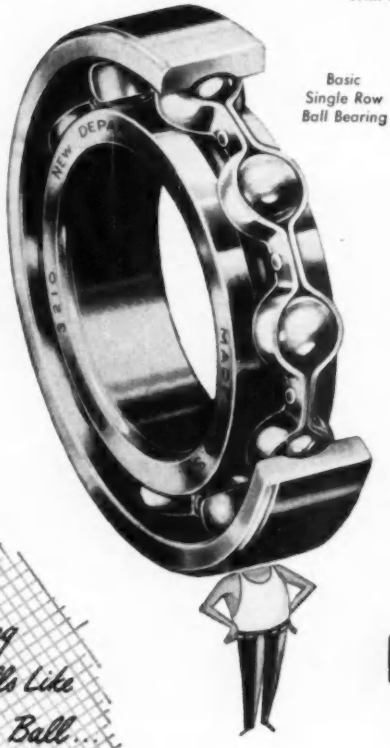
With Two Shields

With Snap Ring

With One Seal

With Two Seals

Basic Single Row Ball Bearing



The right "dress" for every job — available as accessories to New Departure's basic ball bearing.

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News of the AUTOMOTIVE AND AVIATION INDUSTRIES

materials would have become more available anyway, since the defense program simply could not absorb the amounts being allotted to it, especially in view of the fact that tooling has not yet proceeded to the point where heavy-volume output is possible.

Of course, supplies of such materials as alloy steels, copper, and aluminum are still limited, but there is hope that it will be possible, in the second, third, and fourth quarters of 1952, to allocate more materials to the automobile industry than the National Production Authority has deemed feasible. This might even include copper, which is the most critical from a supply standpoint at the moment.

CROSS-COUNTRY TIMESAVER

An artist's conception of the new Douglas DC-7 shows the trim lines of the luxury airliner, 25 of which are scheduled to go into coast-to-coast service Jan. 1, 1954. Powered by four Wright compound engines delivering a total of 13,000 hp at take-off, compared with the 8400 hp of the DC-6, the DC-7 will have a top speed above 400 mph and a normal cruising speed of over 360 mph, 50 mph faster than the DC-6.

Solar Aircraft Orders Double Its Backlog

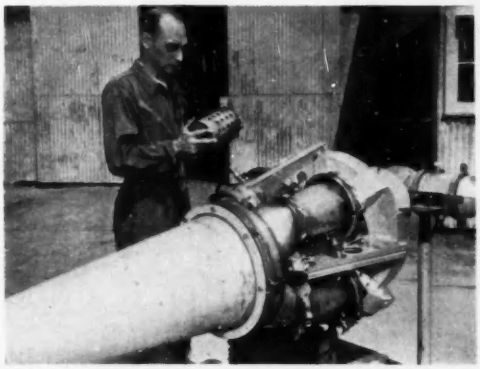
According to a recent announcement by Solar Aircraft Co., a group of new orders, including the largest in the company's history, have more than doubled its backlog in the last year. Lincoln-Mercury Div. of Ford Motor Co. reportedly has given Solar a letter of intent amounting to over $13 million for facilities, tooling, and components of the J40 jet engine. The company will manufacture afterburners, combustion chambers, and other parts for the J40 at its new Wakonda plant in Des Moines, Ia.

Another order has been received from Allis-Chalmers Manufacturing Co. for components for T34 turbo-prop engines, but its amount was not disclosed. Still other sizable orders have recently been received by Solar from Allison Div. of General Motors Corp., the Air Force, Navy, General Electric Co., and Packard Motor Car Co.

As of Jan. 31, 1952, the new orders have brought Solar's backlog to an all-time peak of $87.424 million, excluding the Lincoln-Mercury letter of intent, and is up from $41 million a year ago.

Studebaker Declines Full OPS Increase

Studebaker Corp. has received Office of Price Stabilization approval for factory-list price increases ranging from $46.51 to $93.02. The company did not take the full allowances permitted under the Capehart amendment, since the ceilings were $17.50 to $138.30 under what could have been taken under the formula. Prices are increased for the various models as follows: Custom Champion, $83.72; DeLuxe and Regal Champion, $93.02; Commander State, $46.51; Commander Land Cruiser, $55.81; Commander Regal, $69.77.



MINIATURE JET ENGINE

A "baby" jet engine, developed by Northrop Aeronautical Institute students, is said to weigh 172 lb and have a thrust of 340 lb. Designed to power small planes, it has four combustion chambers installed parallel to the engine axis. There are no immediate plans for sale or production.

Buick New Car Sales Exceed Production

Buick Motor Div. of General Motors Corp. for the last two years has sold more automobiles than it built. In 1951, sales ran nearly 1200 ahead of production, and the previous year, nearly 3400. Last year Buick sales totaled 405,882 cars, compared with production of 404,695. In 1950, when an all-time high of 556,203 cars were sold, production was at a peak of 552,827.

Westinghouse Air Brake Wins Chase Subcontract

Westinghouse Air Brake Co. recently announced that it has been awarded a subcontract by Chase Aircraft Co. for its anti-wheel-skid equipment. The equipment has been specified on C-123B troop and cargo plane carriers.

(*Turn to page* 560, *please*)

A Straight Line

FELLOWS GEAR SHAPERS

Machine Nos.	3	7A	36	48	100
Max. P.D. Ext.	3"	7"	36"	—	100"
Max. P.D. Int.	—	6"	36"	72"	100"
Max. Face Width	3/4"	2"	6"	5"	8"
Max. D.P. Spur	*32	5/7	3	4/5	2
Max. D.P. Helical	*32	6	4/5	—	4
Max. Helix Angle	—	45°	45°	—	35°

*NON FERROUS MATERIALS

GEAR SHAVING MACHINES

Machine Nos.	4	8	12	18	24
Max. P.D. Ext.	4"	8"	12"	18"	24"
Max. Face Width	1"	2½"	3"	5"	5"
Max. D.P.	20	4	6	4	4
Max. Helix Angle	45°	45°	45°	45°	45°

GEAR SHAPERS
SHAVING MACHINES
THREAD GENERATORS
CUTTERS AND SHAVING TOOLS
GEAR INSPECTION INSTRUMENTS

PLASTICS MOLDING MACHINES

to Precision Gear Quality

THE FELLOWS METHOD

FELLOWS GEAR CUTTING Through the years, the original Fellows Generating Principle (Gear Shapers and Cutters) has continually moved ahead to assure increased high-quality gear production. Such problems as heavier feeds, higher cutter reciprocating speeds, automatic and semi-automatic operation have been solved. Now, cutting takes less time than ever before . . . loading and unloading is substantially simplified.

FELLOWS GEAR FINISHING In addition are Fellows developments of complementary gear production equipment making possible extremely close tolerances on a high-production basis. For example: The Fellows "Fine-Pitch" Gear Shaper, and the No. 4 Gear Shaving Machine have been successful in meeting the requirements for very close limits of accuracy on fine-pitch gears.

FELLOWS GEAR INSPECTION Supplementing a complete line of production equipment are gear inspection recording instruments that assure accurate and dependable control over the manufacture of high quality gears at the lowest possible cost.

INSPECTION INSTRUMENTS

- Involute Measuring Machines No. 12 & No. 24
- "Red Liners" No. 8 & No. 20
- Lead Inspection Instruments No. 12-H & No. 24-H

Our engineers are available to discuss gearing in all its phases. Call upon us at any time.

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What's right with this picture?

Chances are you won't find one assembly line turning out both civilian and military trucks.

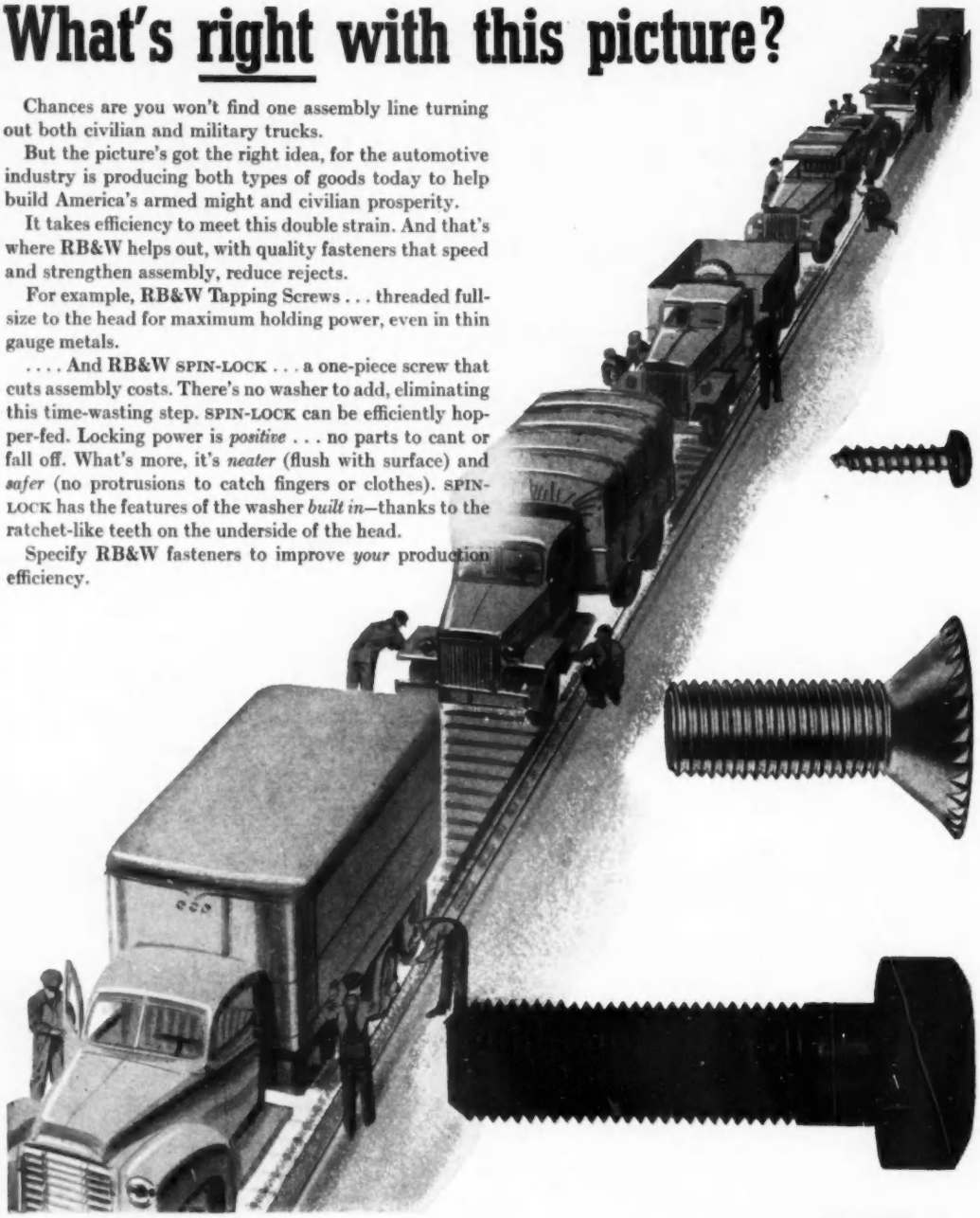
But the picture's got the right idea, for the automotive industry is producing both types of goods today to help build America's armed might and civilian prosperity.

It takes efficiency to meet this double strain. And that's where RB&W helps out, with quality fasteners that speed and strengthen assembly, reduce rejects.

For example, RB&W Tapping Screws . . . threaded full-size to the head for maximum holding power, even in thin gauge metals.

. . . . And RB&W SPIN-LOCK . . . a one-piece screw that cuts assembly costs. There's no washer to add, eliminating this time-wasting step. SPIN-LOCK can be efficiently hopper-fed. Locking power is *positive* . . . no parts to cant or fall off. What's more, it's *neater* (flush with surface) and *safer* (no protrusions to catch fingers or clothes). SPIN-LOCK has the features of the washer *built in*—thanks to the ratchet-like teeth on the underside of the head.

Specify RB&W fasteners to improve *your* production efficiency.



RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

RB&W
THE COMPLETE QUALITY LINE

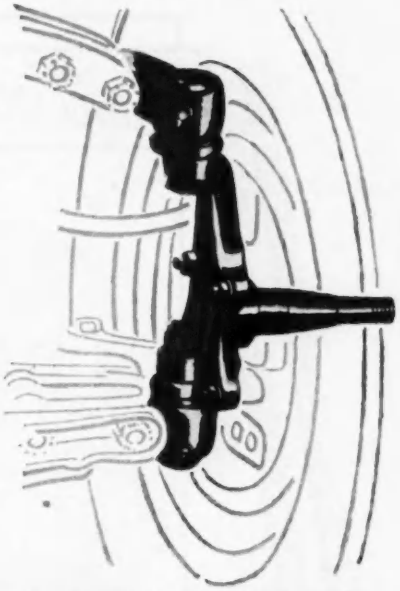
Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Dallas, Oakland. Sales agents at: Portland, Seattle.

107 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

THE "STEERING ENGINEERS" at Thompson's Detroit Division had a big part in bringing to the automotive industry the first improvement in front wheel suspension to be introduced in 20 years.

The benefits are many.

1. More space under the hood for wider engines.
2. Eliminates front suspension bind.
3. Gives better steering and handling.
4. Increases service life many times.
5. Greatly reduces front end overhaul time.
6. Reduces lubrication points from 12 to 4 per car.
7. Cuts assembly time—on production line or garage.
8. Eliminates removing front wheels, bushings, draining brakes and realigning wheels when servicing the front end.
9. Lengthens tire mileage.



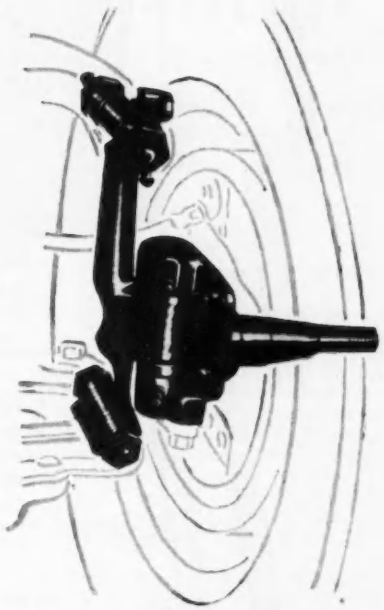
THOMPSON BALL JOINT SUSPENSION

You can count on Thompson

FOR "ENGINEERED STEERING"

The new Thompson Ball Joint Suspension places the steering pivot and the suspension action bearing surfaces at one location on the king-pin line. The upper and lower standard threaded bearings, king-pin and its bushings and the knuckle support have been eliminated. Replacing the king-pin and bushings are an upper and lower ball joint. A one-piece spindle support replaces the knuckle support and spindle.

Investigate this Thompson development. Let us help you solve your steering problems. Our research, experience and manufacturing facilities are always at the disposal of *all* automobile manufacturers.



STANDARD KING-PIN TYPE SUSPENSION

Thompson Products, Inc.

DETROIT DIVISION

7881 Conant Avenue, Detroit, Michigan

Continuous broaching of multiple parts

• Wherever metal is removed on duplicate small parts you are apt to find a place where Footburt Surface Broaching Machines can cut manufacturing costs. Production is high, and tool maintenance is low in cost per piece. We have had many years of experience in designing the tooling for various types of parts and will gladly advise you in applying surface broaching to your work.

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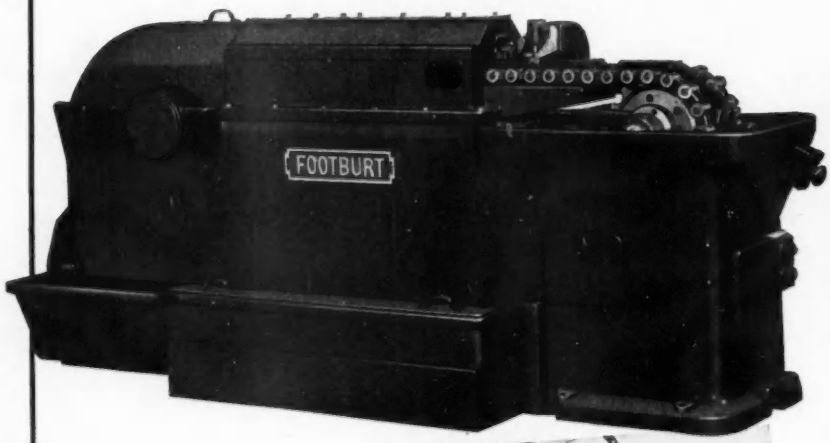
Detroit Office: General Motors Building



Holding fixtures are designed for quick, convenient loading, with automatic clamping and unclamping.

FOOTBURT machine tools

. . . a time tested line of machine tools

SEALED TO ORDER BY VICTOR

WRIGHT
CYCLONE AIR POWER

QUALITY DESIGNED
QUALITY MADE
TO SEAL THE BEST

Core of this flat-type, flush-fitting laminated gasket is copper, machined to closest tolerances on all dimensions and openings. Sealing element which is chemically bonded to both faces is VICTOPAC—a Victor-developed, highly compressed rubber-asbestos sheet packing made of select long fiber asbestos and special heat-resisting synthetic rubber.

RESULT: TIGHTER, MORE DURABLE SEALING OF FUEL INJECTION PUMP TO ADAPTER

Here's an instance of how Victor Gaskets are meeting aviation service demands. Specifications in this case called for sealing gasoline under pressure with a thin flat-type gasket. Required were high compressibility and strength, with maximum resistance to erosion and gasoline effects.

For this application, Wright Aeronautical engineers found a ready answer in Victor "Sealed to Order" service, resulting in the Copper-VICTOPAC laminated gasket shown at left.

COMPLETE SEALING SERVICE TO AVIATION INDUSTRIES

As the leader in sealing products research and design, Victor can give you valuable assistance on all automotive applications using gaskets, shaft seals, or packings. Manufacturing facilities are largest in the industry. If you don't find what you need in the broad Victor line, the experienced Victor engineer in your territory will help you get it.

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GASKETS AND OIL SEALS

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"ORIGINAL EQUIPMENT"
Gaskets and Oil Seals
SEALING PRODUCTS EXCLUSIVELY

Men in the News

Current Personnel Appointments and Changes at Plants of Automotive Manufacturers and Their Suppliers

Fuller Manufacturing Co. — **Robert A. Huston** has been elected vice president in charge of industrial relations.

Carborundum Co.—**Clinton F. Robinson** has been elected president and director. **Paul B. Brown, Clarence E. Hawke,** and **William H. Wendel** have been elected vice president.

Fellows Gear Shaper Co.—**Edward W. Miller** has been elected general manager, while **Edwin R. Fellows, II,** has been named a director and assistant general manager. **Roger M. Knox** has been chosen assistant to the president.

Warner & Swasey Co., Machine Tool Div.—**Noble B. Clark** has been appointed sales manager.

Detrex Corp.—**John P. Emmett** has been chosen to head the New Products Dept.

National Motor Bearing Co., Inc.—**George Corsi** has been promoted to chief process engineer. **Joseph G. Bracco** succeeds him as plant engineer.

Cummins Engine Co., Inc.—**John T. Weber** has been named manager of sales development.

Perfect Circle Corp.—**L. R. Wilson** has been promoted to assistant manager of manufacturers' service sales.

Firestone Tire & Rubber Co.—**Clyde S. Gischel** has been made manager of tire sales, and **Charles E. Erb** succeeds him as manager of passenger tire sales.

Lockheed Aircraft Corp. — **K. V. Sampson** has been appointed assistant secretary.

Consolidated Vultee Aircraft Corp.—**Bernard F. Coggan** has been named assistant to the vice president and general manager.

Jack & Heintz, Inc.—Charles W. Sanford has been named works manager.

Glenn L. Martin Co.—**George M. Bunker** has been elected president, general manager, and a director. **J. B. Wharton, Jr.,** has been elected vice president for finance.

Briggs Manufacturing Co. — **W. D. Robinson** has been named chairman of the board, while **Everett E. Lundberg** succeeds him as president and general manager. **Walter O. Briggs, Jr.,** has been made assistant general manager in addition to his position as executive vice-president.

American Brake Shoe Co., American Manganese Steel Div.—**W. Frank Kelly** has been appointed assistant vice president, and **John E. Holtman** has been chosen general superintendent of foundries.

General Motors Corp., Rochester Products Div.—Paul W. Rhame has been appointed general manager.

Garrett Corp., AiResearch Aviation Service Co. Div.—**J. J. O'Brien** has been named assistant manager.

Solar Aircraft Co.—**Marvin L. Nelson** has been made works manager of the company's new plant in Des Moines, Ia.

Minnesota Mining and Manufacturing Co., Coated Abrasives Div.—**T. J. Miller** has been named technical manager of the Automotive Trades Section.

Toledo Steel Products Co.—**Howard K. Lang** has been made assistant manager, and **H. S. Riley** succeeds him as general sales manager.

Morrison Steel Products, Inc., Mor-Sun Furnace Div.—**John K. Farrar** has been named acting sales manager.

General Metals Corp., Adel Div.—**B. Bronzan** has been appointed vice president and general manager.

Glidden Co.—**John H. Little** has been named manager of aviation sales.

Standard Products Co.—Belcher B. Cary has been appointed director of engineering and research.

Nash-Kelvinator Corp., Nash Motors Div.—**Meade F. Moore** has been elected vice president in charge of research.

Willard Storage Battery Co.—**R. A. Risk** has been chosen manager of related products.

Libbey-Owens-Ford Glass Co.—**Galen M. Sollenberger** has been promoted to manager of defense sales, and **George E. Hill, Jr.,** has been advanced to industrial safety glass manager.

Hydraulic Equipment Co.—**Harry H. Wooden** has been made controller.

Kabriel Co.—**Fred J. Hartman** has been appointed assistant controller, **Norman Hamlin,** credit manager, and **L. H. Kline,** materials control supervisor.

Precision Castings Co., Inc.—**William J. During** has been promoted to executive vice president, while **J. J. Punke, Albert Lintel,** and **Ross W. Castle** have been advanced to vice presidents.

(*Turn to page* 559, *please*)

Necrology

Harry T. Dunn, 76, a former president of Fisk Rubber Co. and once a vice president of Willys-Overland Motors, Inc., died Feb. 19, in West Palm Beach, Fla.

Neal G. Adair, 65, editor of *Motor* and once editor of *Motor World,* a former Chilton Co. publication, died Feb. 22, in New York, N. Y.

Morris W. Kellogg, 79, founder of M. W. Kellogg Co., died Feb. 22, in New York, N. Y.

Do you Recognize the Steel Parts Pictured Below?

They represent 9 reasons why you may still have trouble getting Inland Steel .

In spite of Inland's record-shattering production year (12 all-time records were broken in 1951), Uncle Sam allocated much of the steel you needed to the Armed Services.

That's why Inland is adding capacity to give you the steel you need.

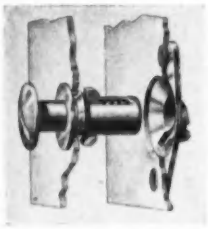
1. Section of aircraft landing mat
2. Ration cans
3. Frame for army cot
4. Aviation gas truck tank
5. 105 mm. howitzer gun tube
6. Barbed wire entanglement post
7. 5 gallon "Blitz" can for gas or water
8. Forging for 105 mm. shell
9. Fin assembly for 500 lb. cluster bomb

INLAND

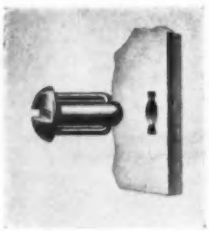
INLAND STEEL COMPANY

38 South Dearborn Street • Chicago 3, Illinois

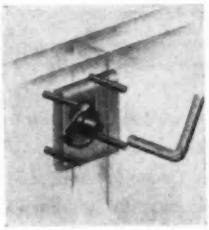
3 ways to save on assembly costs



QUICK-LOCK For fastening removable access doors and panels. Because of its ease of installation, QUICK-LOCK is ideal for assembling removable panels. A 90° turn locks it in place. Stud is self-ejecting when unlocked; visual inspection shows whether fastener is locked. Spring loading takes initial load; solid supports carry increased load. Available in a wide range of sizes.



SPRING-LOCK One-piece fastener for blind holes has load-carrying steel spring wire. Spring steel arms lock fastener securely, prevent loosening under vibration. SPRING-LOCK will work with varying panel thicknesses, locks with a twist of the wrist. SPRING-LOCK is now available in high-impact plastic. The molded design permits heads to be made in various shapes for refrigerator shelf supports, washer knobs, brackets. Available in a wide variety of shapes and sizes, and also in custom designs.



ROTO-LOCK Serrated, tapered cam is engaged by formed lug as fastener is locked. Cam action draws panels together tightly, insures locking even under conditions of misalignment. Opens easily for demounting. ROTO-LOCK carries heavy tension and shear loads; can be used for air and water-tight seals; recesses completely into panels. Solidly built without springs or delicate mechanical parts, unaffected by arctic temperatures or field service.

Simmons Fasteners are widely used in refrigerators, washing machines, electrical equipment, electronic assemblies, prefabricated portable shelters, coolers, demountable furniture. Every Simmons Fastener is a service-proved design with a long record of assembly-cost saving in many industries.

If you are interested in cutting your costs, turn to Simmons Fasteners—the fasteners with *uses unlimited.* Write for samples and catalogs today.

SIMMONS FASTENER CORPORATION
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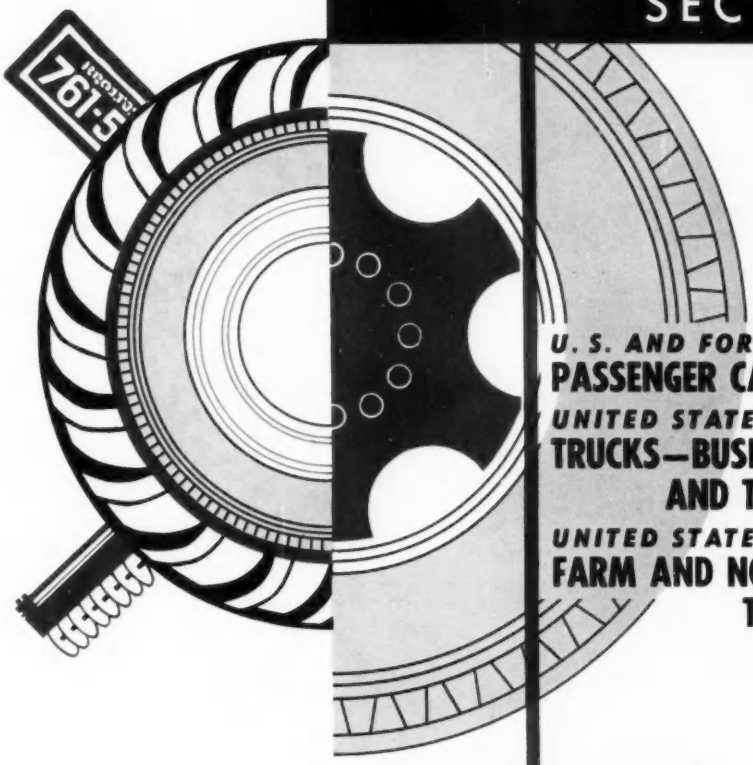
Simmons
QUICK-LOCK
SPRING-LOCK
ROTO-LOCK

AUTOMOTIVE INDUSTRIES
34TH ANNUAL STATISTICAL ISSUE

MOTOR VEHICLE SECTION

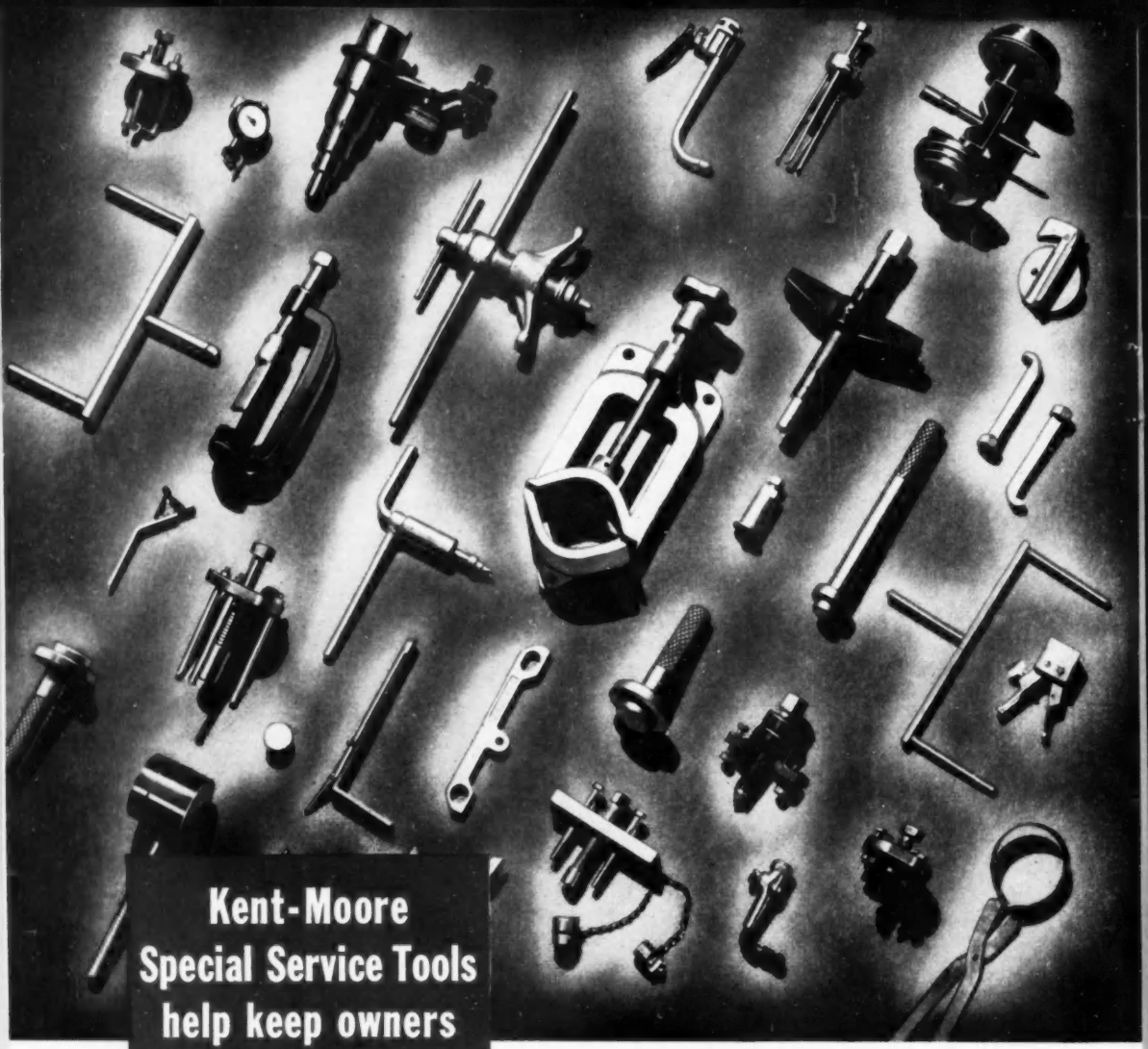


U. S. AND FOREIGN
PASSENGER CARS

UNITED STATES
TRUCKS—BUSES AND TRAILERS

UNITED STATES
FARM AND NON-FARM TRACTORS

- **PRODUCTION DATA**
- **NEW REGISTRATIONS**
- **TOTAL REGISTRATIONS**
- **EXPORTS and IMPORTS**
- **SPECIFICATIONS**



Kent-Moore Special Service Tools help keep owners satisfied...with the cars they drive and the dealers they patronize...

Chances are you've never seen tools like these before. Unless, that is, you're actively engaged in reducing automotive service problems. Then of course you'll recognize them for what they are . . . Kent-Moore Special Service Tools, developed specifically to perform essential maintenance and repair operations for which no adequate standard tools exist. They save time, reduce costs, eliminate possible damage to parts. They help the automobile dealer handle his daily service problems quickly, easily, accurately . . . and thus they help him maintain a high standard of owner-customer satisfaction.

KENT-MOORE ORGANIZATION, INC.

ENGINEERS AND MANUFACTURERS OF SPECIAL AUTOMOTIVE SERVICE TOOLS AND EQUIPMENT

5-105 GENERAL MOTORS BUILDING • DETROIT 2, MICHIGAN

PRODUCTION

PASSENGER CARS • TRUCKS • BUSES • TRACTORS • TRAILERS

Factory Sales and Their Wholesale Value, U. S. Plants

As reported by the Automobile Manufacturers Association

Year	PASSENGER CARS			TRUCKS AND BUSES			TOTAL	
	Number of Units	Wholesale Value	Average Wholesale Price	Number of Units	Wholesale Value†	Average Wholesale Price	Number of Units	Wholesale Value
1900	4,192	$ 4,899,443	$1,169	.....	.....	.....	4,192	$ 4,899,443
1901	7,000	8,183,000	1,169	.....	.....	.....	7,000	8,183,000
1902	9,000	10,395,000	1,155	.....	.....	.....	9,000	10,395,000
1903	11,235	13,000,000	1,157	.....	.....	.....	11,235	13,000,000
1904	22,130	23,357,692	1,055	700	$ 1,272,747	$1,818	22,830	24,630,439
1905	24,250	38,670,000	1,594	750	1,330,000	1,773	25,000	40,000,000
1906	33,200	61,460,000	1,851	800	1,440,000	1,800	34,000	62,900,000
1907	43,000	91,620,000	2,131	1,000	1,780,000	1,780	44,000	93,400,000
1908	63,500	135,250,000	2,129	1,500	2,550,000	1,700	65,000	137,800,000
1909	123,990	159,765,721	1,288	3,297	5,333,683	1,618	127,287	165,099,404
1910	181,000	215,340,000	1,189	6,000	9,660,000	1,610	187,000	225,000,000
1911	199,319	225,000,000	1,128	10,681	21,000,000	1,966	210,000	246,000,000
1912	356,000	335,000,000	941	22,000	43,000,000	1,954	378,000	378,000,000
1913	461,500	399,302,000	866	23,500	44,000,000	1,872	485,000	434,902,000
1914	548,139	420,838,378	768	24,900	44,219,096	1,776	573,039	465,057,474
1915	895,930	575,978,000	643	74,000	125,800,000	1,700	969,930	701,778,000
1916	1,525,578	921,378,000	604	92,130	161,000,000	1,747	1,617,708	1,082,378,000
1917	1,745,792	1,053,505,781	603	128,157	220,982,668	1,724	1,873,949	1,274,488,449
1918	943,436	801,937,925	850	227,250	434,168,992	1,910	1,170,686	1,236,106,917
1919	1,651,625	1,365,395,415	827	224,731	371,422,820	1,653	1,876,356	1,736,818,235
1920	1,905,560	1,809,170,963	949	321,789	423,249,410	1,315	2,227,349	2,232,420,373
1921	1,468,067	1,038,191,037	707	148,052	166,070,810	1,122	1,616,119	1,204,261,847
1922	2,274,185	1,494,513,991	657	269,991	226,049,658	837	2,544,176	1,720,563,649
1923	3,624,717	2,196,272,116	606	409,295	308,537,929	754	4,034,012	2,504,810,045
1924	3,185,881	1,970,096,559	618	416,659	318,580,580	765	3,602,540	2,288,677,139
1925	3,735,171	2,458,370,026	658	530,659	458,400,277	864	4,265,830	2,916,770,303
1926	3,783,987	2,640,064,519	698	516,947	452,123,435	875	4,300,934	3,092,187,954
1927	2,936,533	2,164,670,891	737	464,793	420,130,624	904	3,401,326	2,584,801,515
1928	3,815,417	2,576,489,623	675	543,324	437,132,258	804	4,358,759	3,013,621,881
1929	4,587,400	2,847,118,562	621	771,020	566,029,644	734	5,358,420	3,413,148,206
1930	2,784,745	1,645,398,523	591	571,241	389,436,690	682	3,355,986	2,034,835,213
1931	1,973,090	1,111,273,774	563	416,648	262,417,542	630	2,389,738	1,373,691,316
1932	1,135,491	618,291,168	544	235,187	136,193,336	579	1,370,678	754,484,504
1933	1,573,512	762,736,512	485	346,545	186,069,314	537	1,920,057	948,805,826
1934	2,177,919	1,147,116,195	527	575,192	320,143,667	557	2,753,111	1,467,259,862
1935	3,252,244	1,709,425,904	526	694,690	379,407,751	546	3,946,934	2,088,833,655
1936	3,669,528	2,015,646,217	549	784,587	462,820,474	590	4,454,115	2,478,466,691
1937	3,915,889	2,243,732,380	573	893,085	534,494,873	598	4,808,974	2,778,227,253
1938	2,000,985	1,236,802,411	618	488,100	334,147,530	685	2,489,085	1,570,949,941
1939	2,866,796	1,765,189,067	616	710,496	494,829,231	696	3,577,292	2,260,018,298
1940	3,717,385	2,370,654,083	638	754,901	567,820,414	752	4,472,286	2,938,474,497
1941	3,779,682	2,567,205,996	679	1,060,820	1,069,799,855	1,008	4,840,502	3,637,005,851
1942	222,862	163,813,559	736	818,662	1,427,456,801	1,744	1,041,524	1,591,270,360
1943‡	139	101,799	....	699,689	1,451,794,475	2,076	699,828	1,451,896,274
1944‡	610	446,704	....	737,524	1,700,928,939	2,306	738,134	1,701,375,643
1945	69,532	57,254,655	823	655,683	1,181,955,532	1,803	725,215	1,239,210,187
1946	2,148,699	1,979,781,084	921	940,866	1,043,247,276	1,109	3,089,565	3,023,028,360
1947	3,558,178	3,963,896,000	1,114	1,239,443	1,709,843,000	1,378	4,797,621	5,673,739,000
1948	3,909,270	4,853,402,000	1,242	1,376,274	1,858,210,000	1,350	5,285,544	6,711,612,000
1949	5,119,466	6,768,418,000	1,322	1,134,185	1,407,435,000	1,241	6,253,651	8,175,853,000
1950	6,665,863	8,633,272,000	1,295	1,337,182	1,747,480,000	1,307	8,003,045	10,380,752,000
1951P	5,337,729	*7,300,000,000	1,368	1,429,885	*2,275,000,000	1,591	6,767,614	*9,575,000,000

P—Preliminary.

*—Partly Estimated by Automotive Industries.

Note: Table above includes sales of military vehicles. Prior to 1940 station wagons and other vehicles built on passenger car chassis are included with trucks. In 1940 and later years such vehicles built on passenger car chassis are included with passenger cars.

Values reported are for standard equipment only and exclude Federal excise taxes.

† A substantial part of the trucks reported comprises chassis only, without bodies; hence, the value of bodies for these chassis are not included.

‡ Actual value of passenger car factory sales for 1943 and 1944 are not available. Value figures are approximations based on the average value per unit in 1942. While production of passenger cars ended in February, 1942, some vehicles remained in factory stocks to be sold under rationing orders in 1943 and 1944.

Monthly Motor Vehicle Factory Sales—by Years

From Plants Located in the United States

PASSENGER CARS

	1951	1950	1949	1948	1947	1946	1941	1940	1939	1938	1937
January	478,589	487,824	326,859	305,081	246,605	56,367	413,012	363,120	281,465	155,505	309,094
February	505,865	385,361	324,601	274,847	267,015	57,784	397,067	339,595	242,000	139,380	296,784
March	617,399	469,618	403,388	349,998	301,525	85,810	416,016	356,351	299,703	174,065	403,879
April	503,038	455,193	437,058	308,071	314,765	132,631	378,906	364,096	273,409	176,078	439,980
May	511,938	575,518	395,765	225,461	284,357	166,942	421,631	327,872	237,870	154,958	425,432
June	482,029	720,688	493,670	312,400	307,124	141,090	423,008	289,228	246,704	136,531	411,414
July	381,407	595,067	483,581	356,764	279,631	209,180	347,907	174,218	150,738	106,841	360,400
August	426,932	682,782	557,624	348,822	261,158	247,261	79,343	47,804	61,407	58,624	311,454
September	365,906	616,827	534,861	301,170	307,942	232,280	166,397	223,593	161,625	65,159	118,671
October	414,533	651,169	488,176	383,755	315,969	283,586	296,554	421,777	251,819	187,494	298,667
November	356,788	504,445	381,874	364,440	305,148	269,081	359,631	408,817	285,252	320,344	295,328
December	293,305	521,371	292,009	378,455	366,939	266,665	180,210	400,913	373,804	326,006	244,385
Total	5,337,729	6,665,863	5,119,466	3,909,270	3,558,178	2,148,677	3,779,682	3,717,385	2,866,796	2,000,985	3,915,389

TRUCKS AND BUSES

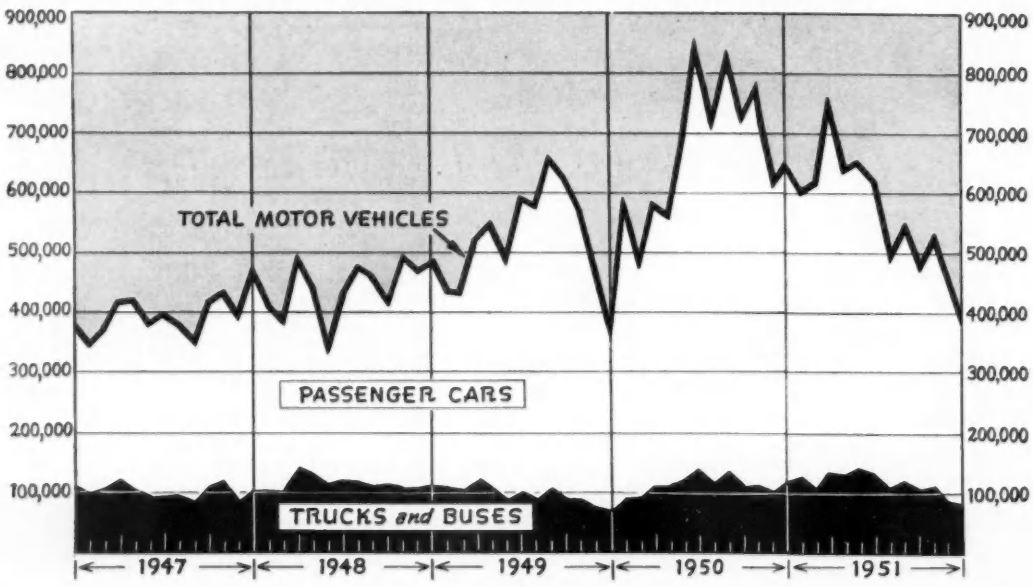
	1951	1950	1949	1948	1947	1946	1941	1940	1939	1938	1937
January	128,244	93,542	105,595	100,582	101,091	45,500	86,426	68,356	60,703	53,823	70,109
February	112,456	90,106	102,987	108,155	106,345	35,258	87,824	63,709	60,220	47,151	67,466
March	137,623	111,042	116,273	142,036	119,655	38,193	94,106	68,260	72,243	47,580	90,242
April	136,234	104,120	107,008	130,019	108,634	81,719	85,395	67,764	63,966	43,032	96,170
May	140,789	121,378	87,686	113,077	98,283	76,162	97,115	63,255	59,672	37,101	91,487
June	135,656	135,926	99,623	118,640	93,248	60,812	97,884	56,562	63,034	38,139	85,898
July	110,909	111,635	95,839	117,792	99,561	88,453	97,877	62,187	58,621	34,602	78,568
August	122,776	135,341	100,796	112,531	88,251	98,948	65,383	28,995	38,461	31,870	82,874
September	110,096	106,016	91,852	112,367	112,327	96,515	68,460	44,147	27,132	18,375	52,542
October	111,914	109,399	85,523	108,048	120,032	108,141	81,478	70,447	61,573	22,018	31,214
November	94,012	99,124	73,857	104,382	89,027	102,075	93,128	76,841	66,533	52,069	64,727
December	89,163	119,553	67,067	108,526	103,188	109,054	105,734	84,378	78,338	62,340	81,849
Total	1,429,872	1,337,182	1,134,136	1,376,155	1,239,642	940,830	1,060,820	754,901	710,496	488,100	893,085

TOTAL CARS, TRUCKS AND BUSES

	1951	1950	1949	1948	1947	1946	1941	1940	1939	1938	1937
January	606,833	581,366	432,454	405,663	347,696	101,867	499,448	431,476	342,168	209,328	379,603
February	618,321	475,467	427,588	383,002	373,360	93,042	484,891	403,304	303,220	186,531	364,192
March	755,022	580,660	519,661	492,034	421,180	124,003	510,122	424,611	371,946	221,645	494,121
April	639,272	559,313	544,066	438,090	423,399	214,350	464,301	431,860	337,375	219,110	536,150
May	652,727	696,896	483,451	338,538	382,640	243,104	518,746	391,128	297,542	192,059	516,919
June	617,685	856,614	593,293	431,046	400,372	201,902	520,892	345,790	309,738	174,670	497,312
July	492,316	706,702	579,420	474,556	379,192	297,633	445,784	236,405	209,359	141,443	438,968
August	549,708	818,123	658,420	461,353	349,409	346,209	144,726	76,799	99,868	90,494	394,330
September	476,002	722,843	626,713	413,537	420,269	328,795	234,857	267,740	188,757	83,534	171,213
October	526,447	760,568	573,699	491,803	436,001	391,727	378,032	492,224	313,392	209,512	329,876
November	450,800	603,569	455,731	468,822	394,175	371,156	452,759	485,658	351,785	372,413	360,055
December	382,468	640,924	359,076	486,981	470,127	375,719	285,944	485,291	452,142	388,346	326,234
Total	6,767,601	8,003,045	6,253,602	5,285,425	4,797,820	3,089,507	4,840,502	4,472,286	3,577,292	2,489,085	4,808,974

Source: Bureau of the Census and Automobile Manufacturers Association. No monthly factory sales are available for war years, 1942 to 1945.

MOTOR VEHICLE FACTORY SALES, BY MONTHS, 1947-1951



Factory Sales of Motor Vehicles to Domestic and Foreign Markets

From data supplied by The Automobile Manufacturers Association

	PASSENGER CARS				TRUCKS AND BUSES				TOTAL MOTOR VEHICLES			
1951	Total	Domestic Market	Foreign Market	% Foreign	Total	Domestic Market	Foreign Market	% Foreign	Total	Domestic Market	Foreign Market	% Foreign
Jan.	478,589	459,567	19,022	4.0	128,244	109,893	18,351	14.3	606,833	569,460	37,373	6.1
Feb.	505,865	481,239	24,626	4.9	112,456	95,317	17,139	15.2	618,321	576,556	41,765	6.7
Mar.	617,399	588,436	28,964	4.7	137,623	119,027	18,596	13.5	755,022	707,462	47,560	6.3
Apr.	503,038	475,316	27,722	5.5	126,234	108,247	17,987	13.2	629,272	583,563	45,709	7.1
May	511,938	482,263	29,675	5.8	140,789	122,163	18,626	13.2	652,727	604,426	48,301	7.4
June	482,029	457,293	24,736	5.1	135,656	115,852	19,804	14.6	617,685	573,145	44,540	7.2
July	381,407	359,276	22,131	5.8	110,909	92,147	18,762	16.9	492,316	451,423	40,893	8.3
Aug.	426,932	404,590	22,342	5.2	122,776	99,785	22,991	18.7	549,708	504,375	45,333	8.2
Sept.	365,906	350,246	15,660	4.3	110,096	91,105	18,991	17.2	476,002	441,351	34,651	7.3
Oct.	414,533	401,392	13,141	3.2	111,914	93,383	18,531	16.5	526,447	494,775	31,672	6.0
Nov.	356,788	346,048	10,740	3.0	94,012	76,363	17,649	18.8	450,800	422,411	28,389	6.3
Dec.	293,305	284,223	8,982	3.1	89,163	71,586	17,577	19.7	382,468	355,909	26,559	6.9
Total	5,337,729	5,089,988	247,741	4.6	1,429,872	1,204,868	225,004	15.7	6,767,601	6,294,856	472,745	7.0
1950												
Jan.	487,824	475,495	12,329	2.5	93,542	84,569	8,973	9.6	581,366	560,064	21,302	3.7
Feb.	385,361	377,185	8,176	2.1	90,106	81,068	9,038	10.0	475,467	458,253	17,214	3.6
Mar.	469,618	461,119	8,499	1.8	111,042	99,983	11,059	10.0	580,660	561,102	19,558	3.4
Apr.	455,193	446,524	8,669	1.9	104,120	93,528	10,592	10.2	559,313	540,052	19,261	3.4
May	575,518	563,119	12,399	2.1	121,378	109,320	12,058	9.9	696,896	672,439	24,457	3.5
June	720,688	702,935	17,753	2.5	135,926	120,582	15,344	11.3	856,614	823,517	33,097	3.9
July	595,067	581,069	13,998	2.3	111,635	98,894	12,741	11.4	706,702	679,963	26,739	3.8
Aug.	682,782	669,550	13,232	1.9	135,341	121,673	13,668	10.0	818,123	791,223	26,900	3.3
Sept.	616,827	602,423	14,404	2.3	106,016	93,722	12,294	11.6	722,843	696,145	26,698	3.7
Oct.	651,169	635,544	15,625	2.4	109,399	97,621	11,778	10.8	760,568	733,165	27,403	3.6
Nov.	504,445	490,855	13,590	2.7	99,124	81,341	17,783	17.9	603,569	572,196	31,373	5.2
Dec.	521,371	507,120	14,251	2.7	119,553	104,122	15,431	12.9	640,924	611,242	29,682	4.6
Total	6,665,863	6,512,938	152,925	2.3	1,337,182	1,186,423	150,759	11.3	8,003,045	7,699,361	303,684	3.8
YEARLY TOTALS												
1949	5,119,466	4,963,325	156,141	3.0	1,134,185	1,002,551	131,634	11.6	6,253,651	5,965,876	287,775	4.6
1948	3,909,270	3,676,093	233,177	6.0	1,376,274	1,173,234	203,040	14.7	5,285,544	4,849,327	436,217	8.2
1947	3,558,178	3,297,331	260,847	7.3	1,239,443	987,954	251,489	20.3	4,797,621	4,285,285	512,336	10.7
1946	2,148,699	2,004,649	144,050	6.7	940,866	753,845	187,021	19.9	3,089,565	2,758,494	331,071	10.7
1945	69,532	68,093	1,439	2.1	291,469	254,039	37,430	12.8	361,001	322,132	38,869	10.7
1944	610	308	302	49.5	116,167	102,295	13,872	11.9	116,777	102,603	14,174	12.1
1943	139	121	18	12.9	24,842	23,420	1,422	5.7	24,981	23,541	1,440	5.8
1942	222,862	215,779	7,083	3.2	184,985	164,325	20,660	11.2	407,847	380,104	27,743	6.8
1941	3,779,632	3,681,858	98,124	2.6	854,719	743,932	110,787	13.9	4,634,401	4,425,490	208,911	4.7
1940	3,717,385	3,608,042	109,343	2.9	692,791	599,912	92,879	13.4	4,410,176	4,207,954	202,222	4.6

Passenger Car Factory Sales by Body Types

Automobile Manufacturers Association

Body Type	Units	% of Total
1951*		
4-Door Sedans	2,712,256	50.82
2-Door Sedans, Coaches, Coupes†	1,773,729	33.23
Business Coupes	53,876	1.01
"Hard Top" (Coupes and Sedans)	487,856	9.14
Convertibles, Except "Hard Top"	143,388	2.69
Station Wagons‡	149,381	2.80
Chassis	17,243	.31
Total	5,337,729	100.00
1950		
4-Door Sedans	3,246,996	48.71
2-Door Sedans, Coaches, Coupes†	2,704,079	40.57
Business Coupes	89,587	1.34
"Hard Top" Coupes and Sedans	266,680	4.00
Convertibles (Except "Hard Top")	208,090	3.12
Station Wagons‡	141,697	2.13
Chassis	8,734	.13
Total	6,665,863	100.00
1949		
4-Door Sedans	2,519,894	49.23
2-Door Sedans, Coaches, Coupes†	2,192,825	42.83
Business Coupes	82,355	1.61
"Hard Top" Coupes and Sedans	10,431	.20
Convertibles (Except "Hard Top")	215,635	4.21
Station Wagons‡	88,410	1.73
Chassis	9,916	.19
Total	5,119,466	100.00
1948		
4-Door Sedans	1,968,946	50.37
2-Door Sedans, Coaches, Coupes†	1,554,687	39.77
Business Coupes	63,372	1.62
"Hard Top" Coupes and Sedans	....	....
Convertibles (Except "Hard Top")	196,597	5.03
Station Wagons‡	102,463	2.62
Chassis	23,205	.59
Total	3,909,270	100.00

* Estimated by Automotive Industries.
† Does not include Business Coupes.
‡ Includes only station wagons produced on passenger car chassis.

Factory Sales of Special Types of Vehicles

Automobile Manufacturers Association

Vehicle Type	Units
1951	
Station Wagons(1)	194,589
Motor Coaches(2)	9,452
School Bus Chassis	31,891
Trucks with Cab-Over-Engine	25,482
Trucks with Diesel Engines	16,494
Trucks with 6 wheels, 3 axles	36,429
Multi-Stop Trucks	28,867
Ambulances and Funeral Vehicles	4,177
1950	
Station Wagons(1)	159,944
Motor Coaches(2)	4,908
School Bus Chassis	19,953
Trucks with Cab-Over-Engine	22,370
Trucks with Diesel Engines	13,902
Trucks with 6 Wheels, 3 Axles	15,719
Multi-Stop Trucks	21,681
Ambulances and Funeral Vehicles	2,971
1949	
Station Wagons(1)	104,613
Motor Coaches(2)	5,511
School Bus Chassis	13,896
Trucks with Cab-Over-Engine	13,326
Trucks with Diesel Engines	6,047
Trucks with 6 Wheels, 3 Axles	4,122
Multi-Stop Trucks	19,479
Ambulances and Funeral Vehicles	2,853
1948	
Station Wagons(1)	110,312
Motor Coaches(2)	12,299
School Bus Chassis	23,755
Trucks with Cab-Over-Engine	31,047
Trucks with Diesel Engines	5,698
Trucks with 6 Wheels, 3 Axles	5,764
Multi-Stop Trucks	21,380
Ambulances and Funeral Vehicles	4,727

(1)—Includes those built on both passenger and truck chassis.
(2)—Does not include non-integral school buses.

1951 Motor Truck Factory Sales by Gross Vehicle Weights

From data supplied by the Automobile Manufacturers Association

TOTAL MARKET

G.V.W.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
5,000 lb. and less	56,290	48,978	59,036	56,897	59,322	58,435	45,774	50,304	43,360	42,046	36,655	32,998	590,095
5,001-10,000 lb.	23,692	19,496	27,810	24,457	24,701	24,808	21,238	22,689	20,244	18,946	16,812	15,561	260,454
10,001-14000 lb.	7,864	7,612	10,597	12,354	12,560	9,016	7,432	7,412	6,848	6,590	5,605	5,536	99,426
14,001-16,000 lb.	23,289	20,054	24,346	24,674	26,460	25,868	22,312	24,071	24,004	23,445	21,042	18,615	278,180
16,001-19,500 lb.	6,717	6,321	5,061	6,582	6,192	6,141	4,798	6,638	5,645	6,214	3,907	4,721	68,937
19,501-26,000 lb.	6,361	5,972	6,373	6,889	7,134	7,470	5,717	7,215	5,370	8,325	6,507	7,740	81,073
Over 26,000 lb.	3,370	3,502	3,571	3,562	3,678	3,080	2,973	3,664	3,882	5,174	2,651	3,147	42,254
Total	127,583	111,935	136,794	135,415	140,047	134,818	110,244	121,993	109,353	110,740	93,179	88,318	1,420,419

DOMESTIC MARKET

G.V.W.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
5,000 lb. and less	50,435	43,207	52,948	51,290	52,991	51,390	39,979	42,072	37,208	36,776	31,782	27,795	517,783
5,001-10,000 lb.	21,029	16,940	25,003	21,638	22,082	22,181	18,585	19,579	17,398	16,443	14,664	13,523	229,065
10,001-14,000 lb.	6,476	6,639	9,487	11,179	11,389	7,854	6,364	5,876	5,711	5,271	4,213	3,724	84,183
14,001-16,000 lb.	16,957	14,767	17,987	18,605	19,837	19,266	15,109	16,527	17,385	16,612	14,179	12,736	199,967
16,001-19,500 lb.	5,528	4,676	3,719	5,165	5,052	4,683	3,707	5,375	4,457	4,747	2,839	3,650	53,598
19,501-26,000 lb.	5,657	5,320	5,786	6,304	6,652	6,875	5,060	6,276	4,653	7,527	5,667	6,562	72,339
Over 26,000 lb.	3,180	3,285	3,305	3,302	3,458	2,830	2,713	3,302	3,633	4,899	2,309	2,844	39,060
Total	109,262	94,834	118,235	117,483	121,461	115,079	91,517	99,007	90,445	92,275	75,653	70,834	1,196,085

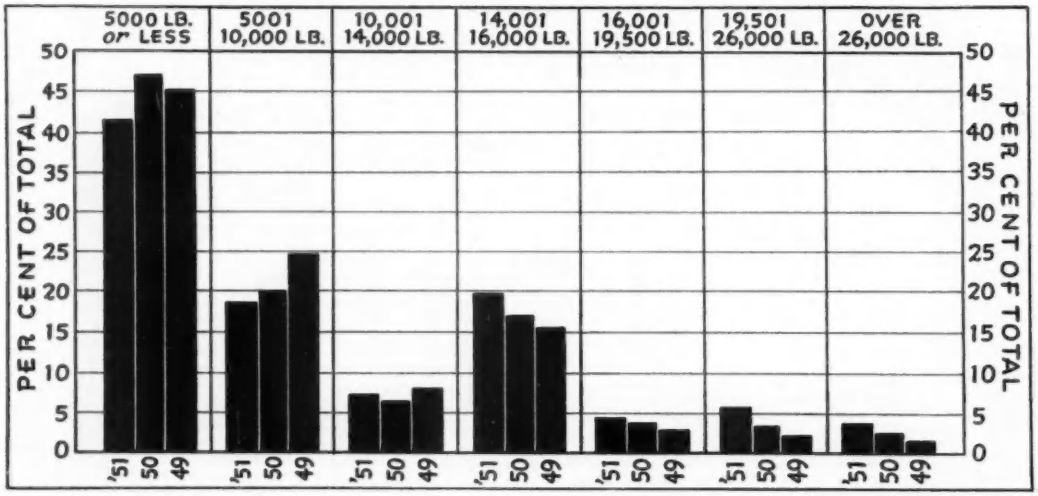
FOREIGN MARKET

G.V.W.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
5,000 lb. and less	5,855	5,771	6,088	5,607	6,331	7,045	5,795	8,232	6,152	5,270	4,873	5,203	72,222
5,001-10,000 lb.	2,663	2,556	2,807	2,819	2,619	2,627	2,653	3,110	2,846	2,503	2,148	2,038	31,389
10,001-14,000 lb.	1,388	972	1,110	1,175	1,171	1,162	1,068	1,536	1,137	1,319	1,392	1,813	15,245
14,001-16,000 lb.	6,332	5,287	6,359	6,069	6,623	6,602	7,203	7,544	6,619	6,833	6,863	5,879	78,213
16,001-19,500 lb.	1,189	1,645	1,342	1,417	1,140	1,458	1,091	1,263	1,188	1,467	1,068	1,071	15,339
19,501-26,000 lb.	704	652	587	585	482	595	657	939	717	798	840	1,178	8,734
Over 26,000 lb.	190	217	266	260	220	250	260	362	249	275	342	303	3,194
Total	18,321	17,101	18,559	17,932	18,586	19,739	18,727	22,986	18,908	18,465	17,526	17,484	224,334

Motor Truck Factory Sales By G.V.W., 1946-1951

Year	5,000 lb. & Less Units	5,000 lb. & Less % of Total	5,001-10,000 lb. Units	5,001-10,000 lb. % of Total	10,001-14,000 lb. Units	10,001-14,000 lb. % of Total	14,001-16,000 lb. Units	14,001-16,000 lb. % of Total	16,001-19,500 lb. Units	16,001-19,500 lb. % of Total	19,501-26,000 lb. Units	19,501-26,000 lb. % of Total	Over 26,000 lb. Units	Over 26,000 lb. % of Total	Total Units	Total % of Total
1951	590,095	41.5	260,454	18.3	99,426	7.0	278,180	19.6	68,937	4.9	81,073	5.7	42,254	3.0	1,420,419	100
1950	627,405	47.1	266,042	20.0	89,156	6.7	219,918	16.5	53,484	4.0	47,029	3.5	29,239	2.2	1,332,274	100
1949	513,148	45.5	279,359	24.8	84,605	7.5	173,137	15.3	37,227	3.3	23,798	2.1	17,351	1.5	1,128,625	100
1948	485,088	35.6	267,720	19.6	182,500	13.4	280,535	20.6	76,711	5.6	50,023	3.7	21,279	1.5	1,363,856	100
1947	375,445	30.8	182,490	14.9	265,989	21.8	285,589	23.4	41,606	3.4	42,761	3.5	26,754	2.2	1,220,634	100
1946	330,730	35.5	88,235	9.5	247,912	26.6	200,574	21.6	24,162	2.6	25,252	2.7	13,874	1.5	930,739	100

67% OF 1951 TRUCK SALES WERE UNDER 14,001 LBS. G.V.W.



BUSES • TRAILERS

Revenue Motor Bus Factory Sales

From Plants Located in the United States

As reported by the Automobile Manufacturers Association

	1951	1950	1949	1948	1947	1946	1944	1943	1942	1941	1940
January	661	219	658	1,382	1,273	447	231	227	901	430	467
February	521	133	418	1,101	1,303	285	245	226	828	456	454
March	829	199	545	1,430	1,421	527	336	102	929	662	405
April	819	268	514	1,056	1,650	948	352	76	875	603	336
May	742	412	564	1,288	1,853	789	367	33	938	701	531
June	838	598	632	1,068	1,628	774	293	54	875	609	458
July	665	397	439	1,012	1,806	862	381	15	879	650	406
August	763	457	444	771	1,765	1,067	470	48	263	627	688
September	743	423	298	1,143	1,607	833	562	145	557	748	403
October	1,174	553	322	679	1,667	975	594	162	376	615	655
November	833	584	308	545	1,416	1,146	484	199	419	573	591
December	844	665	369	824	1,721	1,438	1,483	326	497	952	721
Total	9,453	4,908	5,511	12,299	19,110	10,091	5,799	1,613	8,337	7,626	6,147

Motor Bus Factory Sales—by Type of Bus*

Does Not Include Non-Integral School Buses

As reported by the Automobile Manufacturers Association

	City Coaches			Intercity Coaches			Special Coaches†			Total All Coaches		
Year	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total
1946	6,842	699	7,541	2,276	107	2,383	159	7	166	9,227	813	10,090
1947	11,799	1,821	13,620	3,451	500	3,951	1,400	139	1,539	16,650	2,460	19,110
1948	6,971	1,267	8,238	2,558	468	3,026	997	37	1,035	10,526	1,773	12,299
1949	3,402	398	3,800	690	165	855	802	54	856	4,894	617	5,511
	2,748	705	3,453	581	178	759	683	13	696	4,012	896	4,908
1951	4,753	545	5,298	1,223	121	1,354	2,796	5	2,801	8,782	671	9,453

† Includes Integral School Buses.

Truck Trailer Shipments by Type

As reported by Industry Division, Bureau of the Census

Type of Trailer	1951	1950	1949	1948
Vans				
Insulated and refrigerated	3,900	3,992	2,756	2,724
Steel‡	718	....	....	....
Aluminum‡	1,691	....	....	....
Furniture	1,289	•	•	•
Steel‡	617†	....	....	....
Aluminum‡	77†	....	....	....
All other closed-top	22,569	31,554	14,623	18,968
Steel‡	6,745	....	....	....
Aluminum‡	4,510	....	....	....
Open-top	3,111	3,951	1,620	2,023
Steel‡	910	....	....	....
Aluminum‡	649	....	....	....
Total Vans	30,569	39,497	18,999	23,715
Tanks				
Petroleum	5,065	3,812	2,008	3,042
All other	617	259	166	378
Total Tanks	5,682	4,071	2,174	3,420
Pole, pipe & logging				
Single axle	1,215	1,447	681	2,184
Tandem axle	1,734	1,168	628	1,718
Total	2,949	2,615	1,309	3,902
Platforms				
Racks, livestock and stake	1,951	1,648	1,094	1,949
Grain bodies	926	665	502	895
Flats (all types)	10,328	9,073	4,873	6,366
Total Platforms	13,205	11,386	6,469	9,210
Low-bed heavy haulers	4,028	1,783	1,433	1,834
Dump trailers	1,156	881	522	654
All other trailers	3,536	3,386	1,841	2,142
Total Complete trailers	61,425	63,619	32,747	44,877
Trailer chassis	3,269	2,347	1,526	2,083
Total Trailer and Chassis	64,694	65,966	34,273	46,960

• Included with All Other Closed-top.
† Data for eleven months only.
‡ Steel and aluminum van data are only available for 7 months.

Truck Trailer Shipments by Months

In Units and Their Value

As reported by Industry Division, Bureau of the Census

1951	Shipments	Value
January	6,376	$23,160,000
February	5,852	20,980,000
March	7,058	24,550,000
April	5,798	20,850,000
May	5,936	22,451,000
June	4,972	19,701,000
July	4,758	18,779,000
August	5,200	20,167,000
September	4,643	18,312,000
October	5,608	21,583,000
November	4,278	17,351,000
December	4,215	17,420,000
Total	64,691	$245,304,000
1950		
January	3,173	$10,916,000
February	3,573	12,414,000
March	4,509	15,438,000
April	4,511	15,437,000
May	5,006	17,226,000
June	5,640	18,792,000
July	6,200	21,188,000
August	7,236	24,785,000
September	6,820	23,258,000
October	6,686	24,108,000
November	6,403	23,114,000
December	6,209	23,009,000
Total	65,966	$229,685,000
1949		
January	2,603	$9,110,000
February	2,411	8,175,000
March	2,864	10,054,000
April	2,921	10,133,000
May	2,583	9,157,000
June	2,747	9,500,000
July	2,178	7,917,000
August	2,655	9,469,000
September	3,119	11,068,000
October	3,709	12,867,000
November	3,274	11,589,000
December	3,209	10,059,000
Total	34,273	$119,098,000

TRACTORS

Farm and Non-Farm Tractor Shipments, 1940-1951

In Units and Their Wholesale Value

As reported by the Industry Division, Bureau of the Census

Year	TOTAL SHIPMENTS Number	Value (Add 000)	Average Value per Tractor	FOR DOMESTIC USE Number	Value (Add 000)	Average Value per Tractor	FOR EXPORT Number	Value (Add 000)	Average Value per Tractor
TOTAL—ALL TYPES									
1950	698,031	$819,520	$....	604,385	$649,481	$....	93,646	$170,039	$....
1950	698,031	819,520	....	604,385	649,481	....	93,646	170,039	....
1949	720,644	792,881	....	599,621	603,874	....	121,023	189,007	....
1948	738,686	689,357	....	625,413	549,290	....	113,273	140,067	....
1947	638,451	516,815	....	539,312	410,026	....	99,139	106,789	....
1946	396,844	299,132	....	336,073	238,462	....	60,771	60,670	....
1945	315,652	384,496	....	252,086	329,171	....	63,566	55,325	....
1944	311,994	432,985	....	263,594	395,445	....	48,400	37,540	....
1943	144,129	206,822	....	120,233	186,059	....	23,896	20,763	....
1942	227,304	313,850	....	197,426	184,361	....	29,878	29,489	....
1941	370,702	273,390	....	323,918	228,145	....	46,784	45,245	....
1940	284,420	198,776	....	240,694	158,065	....	43,736	40,711	....
WHEEL TYPE									
1951*	426,067	$568,317	$1,334	364,521	$478,854	$1,314	61,546	$89,463	$1,454
1950	499,604	573,784	1,148	425,514	477,747	1,123	74,090	96,037	1,296
1949	545,368	572,430	1,050	445,030	454,565	1,021	100,338	117,865	1,175
1948	529,692	497,298	939	436,984	399,822	915	92,708	97,476	1,051
1947	428,665	349,334	$15	352,443	280,867	797	76,222	68,467	898
1946	255,338	192,272	753	206,951	153,894	744	48,387	38,378	793
1945	243,692	168,896	693	186,281	126,357	678	57,411	42,539	741
1944	249,955	170,113	680	205,897	137,716	669	44,058	32,398	735
1943	103,867	63,217	609	82,576	49,357	598	21,291	13,860	651
1942	185,677	111,618	601	161,668	95,974	594	24,009	15,644	651
1941	324,062	191,129	590	286,858	166,905	582	37,204	24,224	651
1940	249,921	137,179	549	215,701	115,956	537	34,220	21,223	620
TRACKLAYING TYPE									
1951*	35,058	$188,740	$5,384	23,813	$134,482	$5,647	11,245	$54,258	$4,825
1950	44,600	223,487	5,011	29,167	150,205	5,150	15,433	73,282	4,748
1949	43,849	199,423	4,548	28,260	129,234	4,573	15,589	70,189	4,502
1948	39,573	162,007	4,094	29,564	121,382	4,106	10,009	40,625	4,059
1947	37,534	134,330	3,579	27,885	99,164	3,556	9,649	35,166	3,644
1946	26,265	82,934	3,160	19,943	62,402	3,129	6,322	20,532	3,248
1945	43,998	212,008	4,818	39,404	199,461	5,062	4,594	12,547	2,731
1944	45,187	260,583	5,766	42,808	255,772	5,975	2,379	4,811	2,022
1943	30,632	142,194	4,639	28,533	135,365	4,744	2,119	6,829	3,223
1942	28,644	100,370	3,504	23,265	86,616	3,723	5,379	13,754	2,557
1941	29,744	80,064	2,692	20,942	59,170	2,825	8,802	20,894	2,374
1940	25,110	60,285	2,400	16,177	40,872	2,526	8,933	19,413	2,172
GARDEN TYPE									
1950	153,827	$22,249	$145	149,704	$21,529	$144	4,123	$720	$175
1949	131,427	21,028	160	126,331	20,075	159	5,096	953	187
1948	169,421	30,052	177	158,865	28,086	177	10,556	1,966	186
1947	172,252	33,151	192	158,984	29,995	189	13,268	3,156	238
1946	115,241	23,926	208	109,179	22,166	203	6,062	1,760	290
1945	27,962	3,592	128	26,401	3,353	127	1,561	239	153
1944	16,852	2,289	136	14,889	1,958	131	1,963	331	169
1943	9,610	1,411	147	9,124	1,337	146	486	74	152
1942	12,983	1,862	143	12,493	1,771	142	490	91	186
1941	16,896	2,197	130	16,118	2,070	128	778	127	163
1940	9,399	1,312	140	8,816	1,237	140	583	75	129

* Nine months period only.

Tractor Shipments by Type and Hp Ratings

In Units and Their Wholesale Value

As reported by the Industry Division, Bureau of the Census

Type and Hp.	1951* Number of Units	1951* Value (Add 000)	1950 No. of Mfgrs.	1950 Number of Units	1950 Value (Add 000)	1949 No. of Mfgrs.	1949 Number of Units	1949 Value (Add 000)
Wheel Type								
All Purpose								
8 and under 25 belt hp.	242,861	$240,834	17	277,098	$236,097	21	320,621	$256,362
25 and under 30 belt hp.	14,847	20,113	8	17,747	21,276	13	21,716	25,161
30 and under 35 belt hp.	95,473	149,863	10	113,143	151,295	9	95,572	121,998
35 belt hp and over	20,258	33,681	10	26,411	39,965	12	26,708	35,815
Total—All Purpose	373,439	$444,491	28	434,399	$448,633	36	464,617	$439,336
Other								
8 and under 25 belt hp	7,270	7,583	9	7,748	6,958	9	10,751	9,959
25 and under 35 belt hp	15,039	22,100	9	20,533	28,574	10	22,155	27,032
35 and under 45 belt hp	17,911	33,039	9	22,523	36,172	10	20,404	47,362
45 belt hp and over	12,408	61,164	13	14,401	53,447	12	17,441	48,741
Total—Other	62,545	$147,759	21	65,205	$125,151	18	80,751	$133,094
Total—Wheel Type	435,984	$592,250	40	499,604	$573,784	48	545,368	$572,430
Tracklaying Type								
Under 35 drawbar hp	10,913	24,134	9	11,983	23,974	10	13,022	25,717
35-49 drawbar hp	10,179	44,160	4	13,684	52,517	4	13,535	49,834
50-69 drawbar hp	9,700	68,648	4	7,230	39,367	4	7,603	39,938
70-94 drawbar hp			3	5,963	44,456	3	5,571	39,552
95 drawbar hp and over	4,266	51,798	4	5,740	63,173	4	4,118	44,382
Total—Tracklaying Type	35,038	$188,740	10	44,600	$223,487	11	43,849	$199,423
Garden Tractors Incl. Tillers	....	....	92	153,827	22,249	90	131,427	21,028
Total—All Tractors	....	....	136	698,031	$819,520	141	720,644	$792,881

* Nine months period only.

Shipments of Car, Truck and Bus Tires

As reported by the Rubber Manufacturers Association

Year	Original Equipment	Replacement	Export	Total	Production	Inventory
Passenger Car Casings						
1951	26,728,795	34,355,977	726,338	61,811,110	65,634,104	6,976,792
1950	36,678,352	47,102,627	641,987	84,422,966	78,598,174	3,050,301
1949	28,128,583	36,439,572	508,565	65,076,720	65,140,287	8,903,731
1948	21,589,040	41,295,434	455,686	63,540,160	66,738,436	8,772,822
1947	19,644,143	52,857,228	1,608,082	74,109,453	77,795,299	5,444,071
1946	11,086,542	54,684,036	652,643	66,423,221	66,466,319	1,763,472
1945	1,115,295	25,462,305	222,375	26,799,975	28,199,792	2,214,517
1944	208,086	18,329,918	130,032	18,668,036	18,818,738	1,217,615
1943	81,917	10,605,445	71,655	10,759,017	7,620,440	1,132,259
1942	810,489	2,734,003	37,852	3,582,344	2,790,397	4,432,038
Truck and Bus Casings						
1951	5,415,945	10,246,451	957,258	16,799,654	17,816,305	1,796,442
1950	4,670,783	9,704,975	788,450	15,164,208	14,155,842	743,216
1949	3,455,781	7,026,115	958,420	11,440,316	11,228,440	1,734,456
1948	3,256,413	7,852,877	1,131,812	14,241,102	14,575,981	1,925,403
1947	5,411,521	10,013,994	1,648,396	17,073,911	17,754,837	1,505,221
1946	4,223,610	10,806,211	859,369	15,889,190	15,831,862	684,800
1945	4,868,993	11,016,111	282,028	16,167,132	16,324,121	862,664
1944	6,446,428	8,108,959	132,568	14,687,955	14,626,833	795,020
1943	6,045,703	7,941,218	153,800	14,140,721	12,802,789	751,238
1942	5,769,699	6,137,864	169,473	12,077,036	12,560,987	1,815,169
Total Automotive Casings						
1951	32,144,740	44,782,428	1,683,596	78,610,764	83,450,409	8,773,234
1950	41,349,135	56,807,602	1,430,437	99,587,174	92,754,016	3,793,517
1949	31,584,364	43,465,687	1,466,985	76,517,036	76,368,727	10,638,187
1948	26,845,453	49,148,311	1,787,498	77,781,262	81,314,417	10,698,225
1947	25,055,664	62,871,222	3,256,478	91,183,364	95,550,136	6,949,292
1946	15,310,152	65,490,247	1,512,012	82,312,411	82,298,181	2,448,272
1945	5,984,288	36,478,416	504,403	42,967,107	44,523,913	3,077,181
1944	6,654,514	26,438,877	262,600	33,355,991	33,445,571	2,012,635
1943	6,127,620	18,546,663	225,455	24,899,738	20,423,229	1,883,497
1942	6,580,188	8,871,867	207,325	15,759,380	15,351,384	6,247,207

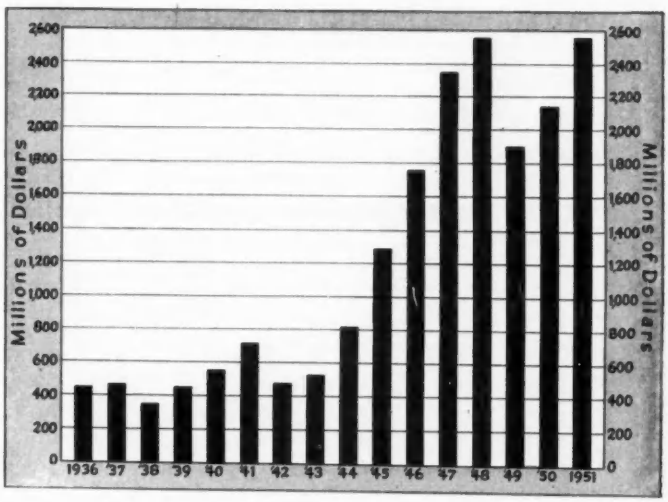
Factory Sales of Replacement Parts and Accessories

Wholesale Value of Repair Parts and Accessories Sales, at Factory

Year	Wholesale Value
1933	$234,461,000
1934	304,642,000
1935	378,323,000
1936	448,527,000
1937	464,619,000
1938	348,068,000
1939	454,673,000
1940	553,004,000
1941	718,212,000
1942	471,957,000
1943	527,710,000
1944	816,724,000
1945	1,284,926,000
1946	1,752,918,000
1947	2,353,523,000
1948	2,552,871,760
1949	1,895,050,000
1950	2,139,734,000
1951*	2,470,000,000

* Partially estimated.

The above data are based on Federal Excise tax collection. The excise tax does not apply on parts and accessories exported, so these values apply for domestic sales only. Prior to July 1, 1944, sales to U. S. Government were not subject to the tax, but have been since that date.



Monthly Factory Sales of Replacement Parts and Accessories, 1945-1951*

	1951	1950	1949	1948	1947	1946	1945
January	$211,423,400	$131,228,100	$197,157,600	$185,849,230	$181,118,000	$127,253,760	$93,602,000
February	204,121,600	134,924,200	173,658,000	203,993,600	201,061,400	131,824,160	89,529,120
March	221,229,100	153,961,600	167,357,800	218,980,200	194,672,170	141,749,200	115,370,200
April	192,774,700	169,638,200	171,985,910	251,843,500	178,323,680	108,620,100	118,461,980
May	215,514,400	179,073,380	157,077,540	192,566,150	212,623,100	146,114,660	118,178,100
June	214,193,100	187,856,650	172,172,250	254,362,900	175,730,820	130,410,900	129,543,740
July	167,664,000	172,624,700	137,159,760	213,983,500	184,101,360	118,871,160	91,432,760
August	207,799,200	224,998,400	167,084,340	244,890,700	256,863,200	175,002,680	123,951,240
September	170,399,600	213,786,700	153,414,420	202,219,700	198,352,320	145,876,740	101,457,320
October	234,482,500	210,208,900	153,741,740	268,940,400	227,763,200	195,721,800	99,932,480
November	.....	171,820,740	136,165,540	156,790,680	254,845,100	150,221,320	97,885,600
December	.....	189,611,900	108,085,200	158,451,200	88,095,260	181,251,720	105,581,660
Total	$2,470,000,000†	$2,139,733,520	$1,895,050,100	$2,552,871,760	$2,353,523,120	$1,752,918,200	$1,284,926,200

* As there is approximately a two months' lag between the month in which sales are made and the month in which collections are normally reported, the estimated sales volumes, recorded above are based on the monthly collections commencing March 1st. † Partially estimated.

CANADIAN STATISTICS

From Canadian Automobile Chamber of Commerce

Motor Vehicle Production in Canada

In Units and Their Value

Year	PASSENGER CARS			TRUCKS AND BUSES			TOTAL	
	Number of Units†	Wholesale Value	Average Wholesale Value	Number of Units†	Wholesale Value	Average Wholesale Value	Number of Units	Wholesale Value
1925	135,573	$ 86,158,773	$ 635	26,397	$ 12,234,486	$ 463	161,970	$ 98,393,259
1926	166,887	106,000,203	635	37,840	16,629,334	439	204,727	122,629,537
1927	146,421	100,962,211	689	32,633	14,942,017	458	179,054	115,904,228
1928	197,848	127,263,877	643	44,206	21,913,122	496	242,054	149,176,999
1929	203,307	134,023,280	659	59,318	29,474,395	497	262,625	163,497,675
1930	121,337	75,253,581	620	32,035	16,513,225	515	153,372	91,766,806
1931	65,072	42,634,173	655	17,487	10,330,763	591	82,559	52,964,936
1932	50,694	32,490,129	641	10,095	6,070,667	601	60,789	38,560,796
1933	53,849	32,568,268	605	12,003	6,062,195	505	65,852	38,630,463
1934	92,647	57,269,156	618	24,205	12,770,318	528	116,852	70,030,474
1935	135,562	79,209,276	584	37,315	19,803,771	531	172,877	99,013,047
1936	128,369	76,814,258	598	33,790	19,140,946	566	162,159	95,955,204
1937	153,046	93,368,282	610	54,417	30,389,011	558	207,463	123,757,293
1938	123,761	81,661,687	660	42,325	26,497,038	626	166,086	108,158,725
1939	108,369	71,101,204	656	47,057	28,072,712	597	155,426	99,173,916
1940	109,911	83,544,445	760	113,102	91,191,516	806	223,013	174,735,961
1941	96,603	81,167,694	840	173,588	163,414,253	941	270,191	244,581,947
1942	12,236	10,305,013	842	216,057	229,103,128	1,060	228,293	239,408,741
1943	.....	.....	....	178,064	222,393,092	1,249	178,064	222,393,092
1944	.....	.....	....	158,038	213,259,582	1,349	158,038	213,259,582
1945	1,868	1,638,118	877	130,777	167,103,012	1,278	132,645	168,741,130
1946	91,871	82,847,330	902	79,657	81,204,338	1,019	171,528	164,051,668
1947	167,257	182,161,183	1,089	90,758	116,357,486	1,282	258,015	298,518,669
1948	166,819	210,799,512	1,264	96,941	137,228,722	1,415	263,760	348,028,234
1949	193,556	277,660,998	1,434	99,028	146,697,354	1,481	292,584	424,358,352
1950	284,076	447,029,182	1,574	106,026	163,942,858	1,546	390,102	610,972,040
1951	280,638	.....	....	132,707	.....	....	413,345	.....

† Production figures include all wheeled vehicles for military use. Universal carriers and scout cars are not included.

Canadian Motor Vehicle Production by Months

	1951	1950	1949	1948	1947	1946	1945	1944
January	39,776	28,527	13,863	16,715	18,700	8,495	13,745	13,072
February	41,238	30,137	17,197	16,382	20,331	7,484	13,090	13,930
March	44,698	30,051	25,566	27,112	22,491	11,373	14,912	14,625
April	41,340	26,386	26,685	24,243	21,891	16,830	14,351	11,061
May	43,067	35,281	26,708	21,368	21,665	20,022	15,045	12,303
June	37,030	41,383	30,096	23,362	21,137	15,585	14,532	14,317
July	30,299	40,131	25,383	15,106	21,907	17,221	11,093	12,132
August	22,539	24,272	20,475	16,959	15,659	12,293	13,376	13,729
September	30,661	38,035	30,894	23,775	24,205	11,543	8,484	12,511
October	32,308	35,573	28,125	25,057	25,479	14,951	6,596	13,230
November	29,527	30,322	19,721	26,794	23,240	19,105	1,575	14,047
December	26,862	30,004	27,871	26,887	21,310	16,626	5,846	12,451
Total	413,345	390,102	292,584	263,760	258,015	171,528	132,645	158,038

1950 Canadian Motor Vehicle Registrations—by Provinces

Province	Passenger Cars	Motor Trucks	Motor Buses	Other Motor Vehicles†	Total Motor Vehicles	Motor-cycles	Trailers
Newfoundland	10,907	4,468	381	300	16,056	319	103
Pr. Edward Island	10,441	3,626	25	1,270	15,362	81	734
Nova Scotia	62,636	27,036	370	2,874	92,916	1,647	2,675
New Brunswick	48,890	19,056	382	4,623	72,951	1,464	3,472
Quebec	303,752	111,388	2,439	.....	417,579	16,122	21,499
Ontario	881,143	205,616	3,612	.....	1,090,371	13,709	72,519
Manitoba	111,756	40,988	191	2,417	155,352	1,994	9,915
Saskatchewan	129,302	69,073	127	140	198,642	1,224	8,990
Alberta	151,724	69,028	1,749	6,892	229,393	2,549	772
British Columbia	198,397	65,005	700	1,601	265,703	4,609	11,032
Yukon and N.W.T.	1,124	1,910	28	134	3,196	28	34
Total—Canada	1,910,072	617,194	10,004	20,251	2,557,521	43,746	131,745

† Includes road tractors, ambulances, fire trucks, hearses, government and municipal vehicles.

NEW REGISTRATIONS

PASSENGER CARS • TRUCKS

New Passenger Car Registrations by Makes, by Years

Based on data from R. L. Polk & Co.

Make of Car	1951 Units	1951 % of Total	1950 Units	1950 % of Total	1949 Units	1949 % of Total	1948 Units	1948 % of Total	1947 Units	1947 % of Total
Chrysler	149,435	2.95	151,300	2.39	130,516	2.70	105,315	3.02	93,871	2.96
De Soto	112,642	2.23	115,023	1.82	103,311	2.14	82,454	2.36	72,966	2.30
Dodge	298,603	5.90	300,104	4.74	273,530	5.65	213,923	6.13	209,552	6.62
Plymouth	542,649	10.72	547,367	8.65	527,915	10.91	347,174	9.94	313,118	9.89
Total—Chrysler Corp.	1,103,330	21.80	1,113,794	17.60	1,035,272	21.40	748,866	21.45	689,507	21.77
Ford	862,309	17.04	1,166,118	18.43	806,766	16.67	486,888	13.95	532,646	16.82
Lincoln	25,816	.51	34,318	.54	37,691	.78	32,638	.93	24,081	.76
Mercury	233,339	4.61	318,217	5.03	186,629	3.86	137,512	3.94	111,198	3.51
Total—Ford Motor Co.	1,121,464	22.16	1,518,653	24.00	1,031,086	21.31	657,038	18.82	667,925	21.09
Buick	392,285	7.75	535,807	8.47	372,425	7.10	244,762	7.01	246,115	7.77
Cadillac	97,093	1.92	101,825	1.61	80,880	1.67	59,379	1.70	53,379	1.69
Chevrolet	1,067,042	21.08	1,420,398	22.45	1,031,466	21.32	709,609	20.32	640,709	20.23
Oldsmobile	273,472	5.40	372,519	5.89	269,351	5.57	175,531	5.03	180,078	5.68
Pontiac	337,821	6.68	440,528	6.96	321,033	6.63	228,939	6.56	206,411	6.52
Total—General Motors Corp.	2,167,713	42.83	2,871,078	45.38	2,075,155	42.89	1,418,220	40.62	1,326,692	41.89
Frazer			11,884	.19	15,827	.33	57,994	1.66	51,158	1.62
Henry J.	51,372	1.02	14,339	.23						
Kaiser	52,286	1.03	85,832	1.35	57,995	1.20	108,367	3.10	57,571	1.74
Total—Kaiser-Frazer Corp.	103,658	2.05	112,055	1.77	73,822	1.53	166,361	4.76	106,729	3.37
Crosley	5,204	.10	6,896	.11	10,175	.21	25,400	.73	15,934	.50
Hudson	96,847	1.91	134,219	2.12	137,907	2.85	109,497	3.14	83,344	2.63
Nash	140,035	2.77	175,722	2.78	135,328	2.80	104,156	2.98	102,808	3.25
Packard	66,999	1.32	73,155	1.16	97,771	2.02	77,843	2.23	47,875	1.51
Studebaker	205,514	4.08	268,229	4.24	199,460	4.12	143,120	4.10	102,122	3.22
Willys	26,049	.51	33,926	.53	28,576	.59	21,408	.61	23,400	.74
Misc. Domestic	3,162	.06	2,375	.04	1,539	.03	2,910	.09	894	.03
Total—All Others	543,910	10.75	694,522	10.98	610,756	12.62	484,334	13.88	376,378	11.88
British Austin	3,800	.08	5,452	.09	3,642	.08	8,610	.25		
British Ford	3,508	.07	1,869	.04	5,087	.10	3,233	.09		
Misel. Foreign	13,520	.26	9,015	.14	3,522	.07	4,300	.12		
Total—Foreign	20,828	.41	16,336	.27	12,251	.25	16,133	.46		
Total—All Makes	5,060,903	100.00	6,326,438	100.00	4,838,342	100.00	3,490,952	100.00	3,167,231	100.00

New Truck Registrations by Makes, by Years

Based on data from R. L. Polk & Co.

Make of Truck	1951 Units	1951 % of Total	1950 Units	1950 % of Total	1949 Units	1949 % of Total	1948 Units	1948 % of Total	1947 Units	1947 % of Total
Autocar	2,112	.21	2,072	.18	1,655	.17	2,770	.27	4,334	.49
Brockway	2,182	.22	2,384	.21	1,626	.17	2,958	.29	4,255	.48
Chevrolet	350,344	34.91	414,496	36.28	345,519	35.93	302,219	29.19	235,803	26.82
Crosley	†	....	422	.04	871	.09	2,411	.23	.....	....
Diamond T	4,508	.45	5,675	.50	5,172	.54	10,657	1.03	10,475	1.19
Divco	3,752	.37	4,309	.38	3,577	.37	5,618	.54	4,893	.56
Dodge	106,600	10.62	99,716	8.73	116,956	12.16	114,431	11.05	126,736	14.42
Federal	1,008	.10	1,469	.13	1,225	.13	4,026	.39	6,020	.68
Ford	250,802	24.98	315,912	27.66	202,179	21.02	225,729	21.81	186,414	21.20
F.W.D.	501	.05	323	.03	337	.04	811	.08	1,195	.14
G.M.C.	100,285	9.99	97,200	8.51	80,407	8.36	74,857	7.23	49,187	5.59
Hudson	.....	....	.....	....	.....	....	117	.01	2,534	.29
International	95,184	9.48	97,818	8.56	91,164	9.48	125,203	12.09	113,151	12.87
Kenworth	668	.07	673	.06	396	.04	478	.05	487	.06
Mack	9,794	.98	9,908	.87	6,862	.71	9,795	.95	10,917	1.24
Oshkosh	†	....	†	....	†	....	173	.02	245	.03
Pontiac	908	.09	1,362	.12	775	.08	.....	....	.....	....
Reo	3,427	.34	3,876	.34	4,003	.41	10,773	1.04	12,911	1.47
Sterling	324	.03	354	.03	229	.02	411	.04	576	.07
Studebaker	32,675	3.25	45,881	4.02	55,099	5.73	50,657	4.89	41,861	4.76
Ward La France	†	....	†	....	†	....	271	.03	509	.06
White	12,260	1.22	12,050	1.05	8,318	.86	11,603	1.12	13,086	1.49
Willys—Jeep	9,002	.90	8,841	.77	14,472	1.50	48,644	4.70	47,612	5.42
Willys—Truck	15,290	1.52	15,799	1.38	18,293	1.90	27,840	2.69	2,207	.26
All Others	2,214	.22	1,767	.15	2,826	.29	2,722	.26	3,724	.42
Total	1,003,850	100.00	1,142,307	100.00	961,961	100.00	1,035,174	100.00	879,132	100.00

• NEW REGISTRATIONS •

New Car Registrations by Months, 1947-1951

	1951		1950		1949		1948		1947	
	Units	% of Total	Units	% of Total	Units	% of Total	Units	% of Total	Units	% of Total
January	472,766	9.34	381,562	6.03	273,158	5.64	274,978	7.88	209,063	6.60
February	430,797	8.51	408,990	6.46	258,218	5.34	249,781	7.16	214,333	6.77
March	512,599	10.13	495,885	7.84	360,567	7.45	311,650	8.93	264,714	8.36
April	467,313	9.23	471,215	7.45	390,938	8.08	330,555	9.47	290,226	9.16
May	470,446	9.30	488,363	7.72	446,264	9.22	255,638	7.32	286,719	9.05
June	454,665	8.98	583,922	9.23	432,471	8.94	246,926	7.07	269,863	8.52
July	406,333	8.03	609,926	9.64	448,477	9.27	291,206	8.34	263,167	8.31
August	424,422	8.39	683,995	10.81	478,556	9.89	317,788	9.10	264,866	8.36
September	406,217	8.02	625,755	9.89	459,647	9.50	296,339	8.49	251,655	7.95
October	373,162	7.37	580,373	9.17	465,765	9.63	291,442	8.35	281,428	8.89
November	332,099	6.56	444,193	7.02	409,702	8.47	313,230	8.97	258,934	8.17
December	310,084	6.13	552,259	8.73	414,579	8.57	311,419	8.92	312,263	9.86
Total	5,060,903	100.00	6,326,438	100.00	4,838,342	100.00	3,490,952	100.00	3,167,231	100.00

Data from R. L. Polk & Co. *Total for January through June.

Regional Sales of New Passenger Cars

Zone	Region	1951 Units	1951 % of Total	1950 Units	1950 % of Total	1949 Units	1949 % of Total	Per Cent Change 1951 Over 1950	Per Cent Change 1951 Over 1949
1	New England	285,555	5.64	347,679	5.50	275,686	5.70	—17.87	+10.35
2	Middle Atlantic	967,363	19.11	1,188,915	18.78	912,922	18.97	—18.58	+10.59
3	South Atlantic	601,045	11.88	729,184	11.52	558,429	11.54	—17.58	+10.76
4	East North Atlantic	1,291,498	25.52	1,587,854	25.10	1,239,079	25.61	—18.67	+10.42
5	East South Central	240,562	4.75	313,994	4.96	238,883	4.94	—23.39	+10.07
6	West North Central	525,624	10.39	670,954	10.61	511,872	10.58	—21.67	+10.26
7	West South Central	454,793	8.99	584,875	9.24	409,250	8.46	—22.25	+11.11
8	Mountain	172,543	3.41	220,562	3.49	168,224	3.48	—21.78	+10.25
9	Pacific	521,920	10.31	683,321	10.80	518,997	10.72	—23.63	+10.05
	Total—United States	5,060,903	100.00	6,326,438	100.00	4,838,342	100.00	—20.01	+10.45

States comprising the various regions are:—Zone 1: Conn., Me., N. H., R. I., Vt.—Zone 2: N. J., N. Y., Pa.—Zone 3: Del., D. of C., Fla., Ga., Md., N. C., S. C., Va., W. Va.—Zone 4: Ill., Ind., Mich., Ohio, Wisc.—Zone 5: Ala., Ky., Miss., Tenn.—Zone 6: Iowa, Kan., Minn., Mo., Neb., N. D., S. D.—Zone 7: Ark., La., Okla., Tex.—Zone 8: Ariz., Colo., Ida., Mont., Nev., N. M., Utah, Wyo.—Zone 9: Cal., Ore., Wash.

New Motor Vehicle Registrations, by States*

	NEW PASSENGER CARS 1951	1950	1949	NEW TRUCKS 1951	1950	1949	TOTAL MOTOR VEHICLES 1951	1950	1949
Alabama	64,420	79,156	58,273	23,294	25,187	21,674	87,714	104,343	79,947
Arizona	22,040	26,570	20,995	7,079	6,980	5,744	29,119	33,550	26,739
Arkansas	37,534	47,003	34,030	20,617	24,086	21,969	58,151	71,089	55,999
California	392,682	519,999	389,544	63,284	66,685	55,036	455,966	586,684	444,580
Colorado	43,172	58,953	42,770	12,669	15,101	12,569	55,841	74,054	55,339
Connecticut	73,246	86,097	66,278	8,229	9,199	7,212	81,475	95,296	73,490
Delaware	15,277	17,421	14,655	2,748	3,076	2,867	18,025	20,497	17,522
Dist. of Col.	26,233	33,466	29,209	2,870	3,109	2,954	29,103	36,575	32,163
Florida	94,103	116,904	84,238	22,499	24,686	19,769	116,602	141,590	104,007
Georgia	93,854	113,923	80,883	29,549	33,464	27,354	123,403	147,387	108,240
Idaho	23,151	27,355	23,211	8,036	8,387	8,091	31,187	35,742	31,302
Illinois	350,846	417,871	345,156	45,205	50,681	51,130	396,051	468,552	396,286
Indiana	159,446	200,112	148,827	29,736	32,453	26,062	189,182	232,565	174,889
Iowa	95,638	128,114	102,183	22,231	27,722	25,823	117,869	155,836	128,006
Kansas	76,047	91,572	74,760	19,522	21,599	22,234	95,569	113,171	96,994
Kentucky	62,832	78,897	61,597	18,897	24,307	21,116	81,729	103,204	82,713
Louisiana	59,212	81,231	65,820	19,467	20,573	18,684	78,679	101,804	84,504
Maine	22,467	29,175	23,140	5,624	7,030	6,032	28,091	36,205	29,172
Maryland	78,073	93,227	69,985	11,187	12,547	9,954	89,260	105,774	79,939
Massachusetts	137,643	166,815	133,288	14,697	18,279	12,698	152,340	185,094	145,986
Michigan	343,779	430,321	321,421	40,938	47,241	35,257	384,717	477,562	356,678
Minnesota	112,416	153,203	107,455	20,044	26,554	22,555	132,460	179,757	129,990
Mississippi	42,386	59,797	40,163	20,524	21,424	18,663	62,910	72,221	58,826
Missouri	149,397	174,394	131,269	23,461	38,586	31,915	173,858	212,980	163,184
Montana	24,735	31,249	23,681	8,866	10,102	9,714	33,601	41,351	33,395
Nebraska	55,510	67,964	51,105	16,922	18,130	17,030	72,432	86,094	68,135
Nevada	6,173	7,672	6,607	1,874	1,781	1,788	8,047	9,453	8,395
New Hampshire	16,226	19,154	15,162	3,249	3,714	3,147	19,475	22,868	18,309
New Jersey	179,333	210,785	165,842	24,870	27,549	23,158	204,203	238,334	189,000
New Mexico	18,512	23,289	17,571	6,501	8,797	7,446	25,013	32,086	25,017
New York	420,720	542,195	415,634	49,840	57,800	47,784	470,560	599,995	463,418
North Carolina	98,339	119,477	92,514	29,093	31,904	27,551	127,432	151,381	121,065
North Dakota	23,213	27,549	22,905	7,252	7,432	9,690	30,465	35,181	32,595
Ohio	315,606	388,389	302,830	45,867	52,741	39,886	361,073	441,130	342,716
Oklahoma	69,112	90,591	65,563	22,270	27,332	23,677	91,382	117,923	89,240
Oregon	58,446	72,261	55,212	14,636	15,223	12,865	73,082	87,484	68,077
Pennsylvania	367,310	435,035	336,446	53,383	61,473	46,306	420,693	496,508	382,752
Rhode Island	24,516	32,884	24,463	2,926	3,825	3,479	27,442	36,709	27,942
South Carolina	49,138	58,073	45,543	14,794	13,922	12,148	63,932	71,995	57,691
South Dakota	22,461	28,158	22,215	6,980	7,522	8,074	29,383	35,680	30,289
Tennessee	76,924	105,144	78,850	21,854	33,279	26,682	92,778	138,423	105,532
Texas	288,935	366,050	243,837	88,701	99,053	71,650	377,636	465,103	315,487
Utah	21,923	27,670	21,363	5,743	6,263	5,756	27,666	33,933	27,122
Vermont	11,457	13,554	13,355	2,693	3,001	3,458	14,150	16,555	16,813
Virginia	104,683	130,886	104,106	22,082	24,541	21,648	126,765	155,427	125,754
Washington	70,792	91,061	74,241	14,141	11,558	14,048	84,933	102,619	88,289
West Virginia	41,345	45,807	36,293	11,052	25,076	10,451	52,397	70,883	46,744
Wisconsin	121,821	151,161	120,845	21,185	15,201	22,593	143,006	166,362	143,441
Wyoming	12,837	17,804	12,023	5,069	5,932	4,567	17,906	23,736	16,590
Total	5,060,903	6,326,438	4,838,342	1,003,850	1,142,307	961,961	6,064,753	7,468,745	5,800,303

* Data from R. L. Polk & Co.

New Truck Registrations—By Makes and G.V.W.

	Year	5,000 lb. and less	5,001-10,000	10,001-14,000	14,001-16,000	16,001-19,500	19,501-26,000	Over 26,000	Total
AUTOCAR	1951	.....	.....	.....	.....	.....	.....	2,112	2,112
	1950	.....	.....	.....	.....	.....	.....	2,072	2,072
	1949	.....	.....	.....	.....	.....	.....	1,655	1,655
BROCKWAY	1951	.....	.....	.....	2	117	339	1,734	2,182
	1950	.....	.....	.....	17	168	422	1,777	2,384
	1949	.....	.....	.....	166	128	631	701	1,626
CHEVROLET	1951	191,347	70,834	20,579	67,584	.....	.....	.....	350,344
	1950	228,865	89,000	26,667	69,964	.....	.....	.....	414,496
	1949	179,489	89,622	26,890	49,518	.....	.....	.....	345,519
CROSLEY	1951	†	.....	.....	.....	.....	.....	.....	†
	1950	422	.....	.....	.....	.....	.....	.....	422
	1949	871	.....	.....	.....	.....	.....	.....	871
DIAMOND T	1951	.....	136	176	795	1,587	1,257	555	4,503
	1950	.....	611	1,267	668	1,490	1,164	475	5,675
	1949	.....	1,025	1,507	1,217	621	553	349	5,172
DIVCO	1951	.....	3,168	584	.....	.....	.....	.....	3,752
	1950	.....	4,121	188	.....	.....	.....	.....	4,309
	1949	.....	3,168	409	.....	.....	.....	.....	3,577
DODGE	1951	50,712	25,352	6,457	14,223	8,528	879	449	106,600
	1950	47,344	25,577	6,003	13,012	7,554	931	295	99,716
	1949	52,866	32,398	50	20,945	9,482	1,212	3	116,956
FEDERAL	1951	.....	.....	20	139	268	448	133	1,008
	1950	.....	.....	31	370	331	629	108	1,469
	1949	.....	.....	60	467	266	357	75	1,225
FORD	1951	117,934	43,994	29,398	44,827	5,919	8,760	.....	250,802
	1950	164,027	58,659	31,458	45,997	6,541	9,230	.....	315,912
	1949	99,044	35,909	30,387	25,901	6,795	4,143	.....	202,179
F.W.D.	1951	.....	.....	.....	22	70	372	37	501
	1950	.....	.....	.....	.....	29	268	26	323
	1949	.....	.....	.....	.....	97	227	83	337
G.M.C.	1951	40,948	18,319	5,435	18,038	6,699	8,142	2,704	100,285
	1950	42,152	19,741	9,877	11,549	5,650	5,720	2,511	97,200
	1949	34,431	18,616	8,966	8,375	5,245	2,048	2,726	80,407
INTERNATIONAL	1951	28,166	18,829	3,652	19,864	10,897	10,024	3,742	95,184
	1950	25,670	21,018	3,152	22,067	12,703	10,498	2,710	97,818
	1949	20,603	25,647	575	26,100	9,540	7,079	1,620	91,164
KENWORTH	1951	.....	.....	.....	.....	.....	2	666	668
	1950	.....	.....	.....	.....	.....	50	623	673
	1949	.....	.....	.....	.....	.....	.....	392	392
MACK	1951	.....	.....	.....	3	1,098	2,847	5,846	9,794
	1950	.....	.....	.....	273	832	1,737	7,066	9,908
	1949	.....	.....	.....	654	741	1,826	3,645	6,866
PONTIAC	1951	908	.....	.....	.....	.....	.....	.....	908
	1950	1,362	.....	.....	.....	.....	.....	.....	1,362
	1949	775	.....	.....	.....	.....	.....	.....	775
REO	1951	.....	.....	.....	958	657	1,760	52	3,427
	1950	.....	10	.....	1,233	1,042	1,569	22	3,876
	1949	.....	.....	.....	2,281	1,304	327	91	4,003
STERLING	1951	.....	.....	.....	.....	.....	74	260	334
	1950	.....	.....	.....	.....	.....	63	291	354
	1949	.....	.....	.....	.....	.....	16	213	229
STUDEBAKER	1951	20,644	5,466	4,056	2,509	.....	.....	.....	32,675
	1950	26,649	8,772	6,309	4,151	.....	.....	.....	45,881
	1949	25,159	14,788	9,279	5,873	.....	.....	.....	55,099
WHITE	1951	.....	.....	.....	912	947	8,276	2,125	12,260
	1950	.....	.....	.....	551	1,235	8,136	2,129	12,050
	1949	.....	.....	.....	543	1,305	5,173	1,297	8,318
WILLYS-JEEP	1951	9,002	.....	.....	.....	.....	.....	.....	9,002
	1950	8,841	.....	.....	.....	.....	.....	.....	8,841
	1949	14,472	.....	.....	.....	.....	.....	.....	14,472
WILLYS-TRUCK	1951	9,091	6,199	.....	.....	.....	.....	.....	15,290
	1950	10,875	4,924	.....	.....	.....	.....	.....	15,799
	1949	9,284	9,009	.....	.....	.....	.....	.....	18,293
ALL OTHERS	1951	873	5	21	24	3	281	907	2,214
	1950	364	32	66	17	31	289	968	1,767
	1949	1,322	111	259	24	222	239	649	2,826
TOTAL	1951	469,625	192,274	70,378	169,900	36,790	43,561	21,322	1,003,850
	1950	556,571	232,465	84,018	169,869	37,606	40,695	21,083	1,142,307
	1949	438,316	230,293	78,382	142,064	35,576	23,831	13,499	961,961
	1948	379,674	223,065	156,954	173,102	49,264	35,107	18,008	1,035,174
	1947	278,251	153,643	220,801	152,549	25,329	29,076	19,483	879,132
% OF TOTAL	1951	46.80%	19.15%	7.01%	16.92%	3.66%	4.34%	2.12%	100.00%
	1950	48.72%	20.35%	7.36%	14.87%	3.29%	3.56%	1.85%	100.00%
	1949	45.56%	23.94%	8.15%	14.77%	3.70%	2.48%	1.40%	100.00%
	1948	36.68%	21.55%	15.16%	16.72%	4.76%	3.39%	1.74%	100.00%
	1947	31.65%	17.48%	25.12%	17.35%	2.88%	3.30%	2.22%	100.00%

* Based on data from R. L. Polk & Co. † Included in All Others.

New Car and Truck Registrations—by Years*

Year	New Passenger Cars	New Commercial Vehicles
1929	3,880,206	527,057
1930	2,625,979	410,699
1931	1,908,141	313,884
1932	1,096,399	180,413
1933	1,943,794	245,869
1934	1,888,557	403,856
1935	2,742,908	510,683
1936	3,404,497	611,644
1937	3,483,752	618,249
1938	1,891,021	365,349
1939	2,653,377	486,748
1940	3,415,905	559,150
1941	3,731,166	640,697
1942	304,691	77,422
1943	205,805	62,469
1944	65,730	121,269
1945	71,877	350,932
1946	1,815,196	625,249
1947	3,167,231	879,132
1948	3,490,952	1,035,174
1949	4,838,342	961,961
1950	6,326,439	1,142,307
1951	5,060,903	1,003,850

* Sources: 1926 through February, 1942 and 1946 and later years compiled by R. L. Polk & Co. Passenger car data from March, 1942, tarough July, 1945, are from OPA and represent new car releases to civilian users. Commercial car data from April, 1942, through July, 1945, are from WPB and ODT and represent certificates of transfer issued to civilian users, excluding government exemption permits.

1951 New Car Registrations—by Rank

Make	Units
Chevrolet	1,067,042
Ford	862,309
Plymouth	542,649
Buick	392,285
Pontiac	337,821
Dodge	298,603
Oldsmobile	273,472
Mercury	233,339
Studebaker	205,514
Chrysler	149,435
Nash	140,035
De Soto	112,643
Cadillac	97,093
Hudson	96,847
Packard	66,999
Kaiser	52,286
Henry J	51,372
Willys	26,049
Lincoln	25,816
Crosley	5,304
British Austin	3,800
British Ford	3,508
Miscellaneous	16,682
Total	5,060,903

1951 New Truck Registrations—by Rank

Make	Units
Chevrolet	350,344
Ford	250,802
Dodge	106,600
G.M.C.	100,285
International	95,184
Studebaker	32,675
Willys—Truck	15,290
White	12,260
Mack	9,794
Willys—Jeep	9,002
Diamond T	4,503
Divco	3,752
Reo	3,427
Brockway	2,182
Autocar	2,112
Federal	1,008
Pontiac	908
Kenworth	668
F.W.D.	501
Sterling	334
Peterbilt	301
Miscellaneous	1,913
Total	1,003,850

Automotive Wholesalers, Dealers and Repair Shops—By Years

Trade List Department, Chilton Company, as of January of Each Year

	Wholesalers	Passenger Car Dealers	Total Truck Dealers	Car and Truck Dealers	Independent Repair Shops	All Retail Outlets
1930	4,028	51,560	25,436	----	47,882	117,493
1931	4,668	47,144	26,137	48,658	53,898	118,713
1932	5,051	42,881	25,952	43,708	58,045	108,147
1933	5,337	38,003	23,746	39,376	59,547	103,113
1934	5,430	34,069	----	35,265	65,064	102,456
1935	5,757	35,977	----	37,238	64,518	105,991
1936	5,905	39,769	23,045	41,201	60,574	105,579
1937	5,874	41,288	24,853	43,461	56,423	102,808
1938	5,934	45,747	27,248	46,224	51,709	101,053
1939	6,019	39,936	26,909	41,992	50,406	95,418
1940	6,176	39,258	24,575	41,870	49,091	93,764
1941	6,575	39,833	24,992	41,790	49,208	95,296
1942	6,631	38,748	32,291	40,537	47,552	93,022
1943	6,130	32,470	27,820	34,276	43,540	80,863
1944	6,101	31,200	----	33,000	42,166	78,550
1945	6,217	30,110	26,370	31,930	41,193	78,498
1946	6,612	30,709	27,159	32,439	42,702	81,838
1947	7,328	34,424	29,397	36,354	49,485	91,229
1948	7,982	38,480	25,998†	40,410	55,694	104,504
1949	8,328	40,022	27,574	43,004	59,908	109,499
1950	8,567	43,079	28,307	45,918	63,714	115,026
1951	8,687	43,115	30,297	46,251	71,199	117,450
1952	8,703	43,257	30,009	46,271	70,324	116,595

† Reduction in truck dealers caused by discontinuance of Plymouth truck production.

Automotive Wholesale and Retail Outlets by States

With Number of Motor Vehicles per Outlet

Trade List Department, Chilton Company, as of January, 1952

		WHOLESALERS		DEALERS				REPAIR SHOPS		RETAIL OUTLETS	
STATE	Total Motor Vehicle Registrations	Number of Wholesalers	Motor Vehicles per Wholesaler	Passenger Car Dealers	Truck Dealers	Car and Truck Dealers	Motor Vehicles per Car and Truck Dealer	Independent Repair Shops	Motor Vehicles per Repair Shop	All Retail Stores	Motor Vehicles per Outlet
Alabama	671,098	142	4,726	518	412	554	1,211	481	1,395	1,035	648
Arizona	280,395	75	3,738	230	173	250	1,121	561	499	811	345
Arkansas	484,702	131	3,700	568	433	591	820	558	868	1,149	421
California	4,768,000	775	6,152	2,202	1,455	2,351	2,028	7,102	671	9,453	504
Colorado	587,651	102	5,761	505	372	530	1,108	846	694	1,376	427
Connecticut	747,512	117	6,388	531	347	577	1,295	1,036	721	1,613	463
Delaware	108,882	21	5,184	100	69	104	1,046	256	425	360	302
Dist. of Col.	181,675	24	7,569	77	55	87	2,088	237	766	324	560
Florida	1,099,139	191	5,754	668	472	709	1,550	1,323	830	2,032	540
Georgia	958,708	164	5,845	718	563	774	1,238	563	1,702	1,337	717
Idaho	276,025	68	4,059	365	293	389	709	521	529	910	303
Illinois	2,802,180	488	5,742	2,558	1,726	2,761	1,014	4,161	673	6,922	404
Indiana	1,474,697	245	6,019	1,325	940	1,454	1,014	1,887	781	3,341	441
Iowa	1,079,846	228	4,736	1,366	1,057	1,507	716	1,466	736	2,973	363
Kansas	893,036	163	5,478	1,056	777	1,118	798	1,099	812	2,217	402
Kentucky	823,700	150	5,491	775	563	828	982	642	1,283	1,480	556
Louisiana	735,015	123	5,975	505	385	539	1,363	529	1,389	1,068	688
Maine	271,954	50	5,439	346	266	380	715	562	483	942	288
Maryland	718,618	102	7,045	484	320	512	1,403	1,107	649	1,619	443
Massachusetts	1,337,770	213	6,280	1,168	680	1,232	1,085	1,733	771	2,965	451
Michigan	2,526,232	324	7,797	1,806	1,094	1,885	1,340	3,080	820	4,965	508
Minnesota	1,206,696	158	7,637	1,544	1,156	1,641	735	1,891	638	3,532	341
Mississippi	497,957	108	4,610	513	397	547	910	219	2,273	766	650
Missouri	1,324,000	265	4,996	1,112	748	1,183	1,119	1,447	914	2,630	503
Montana	271,209	64	4,237	433	334	463	585	415	653	878	308
Nebraska	723,875	121	5,982	722	546	756	957	852	849	1,608	450
Nevada	83,610	17	4,918	102	78	107	781	456	535	263	317
New Hampshire	172,060	26	6,615	229	169	237	725	303	567	540	318
New Jersey	1,677,614	222	7,556	1,090	677	1,170	1,433	2,956	567	4,126	406
New Mexico	253,833	61	4,161	273	195	281	903	486	522	767	330
New York	3,851,500	546	7,054	2,728	1,714	2,899	1,328	7,204	534	10,103	381
North Carolina	1,107,049	205	5,400	886	585	907	1,220	771	1,435	1,678	659
North Dakota	279,244	48	5,817	487	403	519	538	412	677	931	299
Ohio	2,893,159	464	6,235	2,157	1,383	2,260	1,280	3,123	926	5,383	537
Oklahoma	854,304	198	4,314	936	643	971	879	1,118	764	2,089	408
Oregon	702,202	148	4,744	518	377	569	1,234	1,358	517	1,927	364
Pennsylvania	3,306,098	535	6,179	2,953	1,857	3,170	1,042	5,989	552	9,159	360
Rhode Island	260,572	38	6,857	180	101	193	1,350	471	553	664	392
South Carolina	603,118	88	6,853	422	289	445	1,355	329	1,833	774	779
South Dakota	297,710	45	6,615	466	353	515	578	425	700	940	316
Tennessee	878,972	150	5,859	734	494	771	1,140	784	1,121	1,555	565
Texas	3,118,361	545	5,721	2,683	1,850	2,936	1,062	3,791	822	6,727	463
Utah	264,770	74	3,577	260	201	281	942	549	482	830	319
Vermont	121,480	23	5,281	187	138	188	646	234	519	422	287
Virginia	1,003,931	127	7,904	824	583	867	1,157	896	1,120	1,763	569
Washington	948,268	202	4,694	727	536	805	1,177	1,927	492	2,732	347
West Virginia	432,950	101	4,286	597	459	653	663	820	527	1,473	293
Wisconsin	1,231,080	194	6,345	1,411	1,109	1,539	799	1,455	846	2,994	411
Wyoming	155,005	34	4,558	217	182	256	605	193	803	449	345
Total	51,347,402	8,703	5,899	43,257	30,009	46,271	1,109	70,324	730	116,595	440

TOTAL REGISTRATIONS

PASSENGER CARS • TRUCKS • BUSES • FARM TRACTORS

U. S. Motor Vehicle Registrations, 1900-1951

These data do not include publicly owned vehicles of which there were approximately 600,000 in 1950

Year	PASSENGER CARS			TRUCKS AND BUSES			TOTAL VEHICLES	
	Units	Per Cent of Total	Per Cent Increase	Units	Per Cent of Total	Per Cent Increase	Units	Per Cent Increase
1900	8,000	....	150	.....	....	....	8,000	150
1901	14,800	....	85	.....	....	....	14,800	85
1902	23,000	....	55	.....	....	....	23,000	55
1903	32,920	....	43	.....	....	....	32,920	43
1904	54,590	98.7	66	700	1.3	100	55,290	68
1905	77,400	98.2	42	1,400	1.8	100	78,800	43
1906	105,900	98.0	37	2,200	2.0	57	108,100	37
1907	140,300	98.0	33	2,900	2.0	32	143,200	32
1908	194,400	98.0	38	4,000	2.0	38	198,400	38
1909	305,950	98.1	57	6,050	1.9	51	312,000	57
1910	458,377	97.8	50	10,123	2.2	65	468,500	50
1911	618,727	96.8	35	20,773	3.2	105	639,500	36
1912	901,596	95.5	46	42,404	4.5	104	944,000	48
1913	1,190,393	94.6	32	67,667	5.4	60	1,258,060	33
1914	1,664,003	94.4	36	99,015	5.6	46	1,763,018	40
1915	2,332,426	93.6	42	158,506	6.4	60	2,490,932	41
1916	3,367,889	93.1	43	250,048	6.9	58	3,617,937	45
1917	4,727,468	92.4	42	391,057	7.6	56	5,118,525	41
1918	5,554,952	90.2	21	605,496	9.8	55	6,160,448	20
1919	6,679,133	88.2	21	897,755	11.8	48	7,576,888	23
1920	8,131,522	88.0	22	1,107,639	12.0	23	9,239,161	22
1921	9,212,158	87.8	14	1,281,508	12.2	16	10,493,666	11
1922	10,704,076	87.2	16	1,569,523	12.8	22	12,273,599	17
1923	13,253,019	87.8	24	1,849,086	12.2	18	15,102,105	23
1924	15,436,102	87.6	15	2,176,838	12.4	18	17,612,940	17
1925	17,439,701	87.5	13	2,501,023	12.5	15	19,940,724	13
1926	19,220,885	87.3	10	2,831,674	12.7	13	22,052,559	11
1927	20,142,120	87.2	5	2,997,439	12.8	6	23,139,559	5
1928	21,308,159	87.1	6	3,203,524	12.9	7	24,511,683	6
1929	23,060,421	87.1	8	3,442,087	12.9	7	26,502,508	8
1930	22,972,745	86.7	—0.4	3,559,254	13.3	3.4	26,531,999	0.1
1931	22,420,629	86.3	—2.4	3,573,267	13.7	0.4	25,993,896	—2.0
1932	20,994,092	86.2	—6.4	3,347,730	13.8	—6.3	24,341,822	—6.4
1933	20,557,493	86.2	—2.1	3,292,439	13.8	—1.7	23,849,932	—2.0
1934	21,535,199	86.6	4.7	3,346,268	13.4	1.6	24,881,467	4.3
1935	22,513,715	86.1	4.5	3,644,997	13.9	8.9	26,158,712	5.1
1936	24,044,432	85.6	6.8	4,047,277	14.4	11.0	28,091,709	7.4
1937	25,356,786	85.5	5.5	4,292,484	14.5	6.1	29,649,270	5.5
1938	25,264,589	85.5	—0.4	4,283,395	14.5	—0.2	29,547,984	—0.3
1939	26,147,798	85.3	3.5	4,496,770	14.7	5.0	30,644,568	3.7
1940	27,240,475	85.3	4.2	4,683,376	14.7	4.1	31,923,851	4.2
1941	29,240,417	85.6	7.3	4,911,990	14.4	4.9	34,152,407	7.0
1942	27,683,529	85.4	—5.3	4,741,298	14.6	—3.5	32,424,827	—5.1
1943	25,841,215	84.7	—6.7	4,657,882	15.3	—1.8	30,499,097	—6.0
1944	25,298,639	84.6	—2.1	4,611,966	15.4	—1.0	29,910,605	—1.9
1945	25,398,824	83.5	0.4	5,025,233	16.5	9.0	30,424,057	1.7
1946	27,834,543	83.6	9.6	5,858,813	17.4	16.6	33,693,356	10.7
1947	30,482,007	81.8	9.6	6,754,256	18.2	15.4	37,236,263	10.6
1948	33,011,780	81.5	8.3	7,490,343	18.5	11.0	40,502,123	8.9
1949	36,235,930	82.3	9.8	7,770,852	17.7	3.7	44,006,782	8.6
1950	39,952,969	82.8	10.2	8,318,721	17.2	7.0	48,271,690	9.7
1951	42,602,867	83.1	6.8	8,744,535	16.9	5.2	51,347,402	6.3

— Denotes decrease. Sources: Public Roads Administration through 1930; 1931 to 1951 Automotive Industries count.

World and United States Registrations of Motor Vehicles

U. S. Has 70% of World's Motor Vehicles

World Registrations by Continental Divisions.

Courtesy of The American Automobile (Overseas Edition) and El Automovil Americano

Continent	Passenger Cars		Trucks		Buses		Total Motor Vehicles	
	1951	1950	1951	1950	1951	1950	1951	1950
Europe	7,131,607	6,935,527	5,036,403	5,059,009	204,723	257,761	12,372,733	12,252,297
Asia†	521,800	457,892	476,734	401,729	91,338	92,620	1,089,872	952,241
Africa	844,889	802,375	426,404	400,265	11,642	13,372	1,282,935	1,215,932
Oceania	1,378,963	1,255,544	656,974	582,637	8,959	9,131	2,044,896	1,847,312
Americas (Less U. S. A.)	3,298,677	2,886,444	1,493,348	1,258,845	91,613	78,085	4,883,638	4,223,374
World Total (Less U. S. A.)	13,175,936	12,337,782	8,089,863	7,702,425	408,275	450,969	21,674,074	20,491,176
United States	42,602,867	39,952,969	8,609,819	8,185,948	134,716	132,773	51,347,402	48,271,690
World Total (Incl. U. S. A.)	55,778,803	52,290,751	16,699,682	15,888,373	542,991	583,742	73,021,476	68,762,866

Total U. S. Motor Vehicle Registrations by States, 1951-1950

These data do not include publicly owned vehicles of which there were approximately 600,000 in 1950

As of the End of the Registration Year

State	Passenger Cars*		Trucks		Buses		Total Motor Vehicles		Per Cent of Total	
	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950
Alabama	507,233	464,510	162,058	151,700	1,807	1,816	471,098	618,026	1.31	1.28
Arizona	220,195	204,935	59,500	58,737	700	682	280,395	264,354	.55	.55
Arkansas	327,916	290,957	153,149	140,388	3,637	3,695	484,702	435,040	.94	.90
California	4,241,000	3,948,260	527,000	473,897	†	†	4,768,000	4,422,157	9.29	9.20
Colorado	459,326	422,595	128,325	131,299	‡	‡	587,651	553,894	1.14	1.15
Connecticut	651,296	583,170	94,493	87,174	1,723	2,798	747,512	673,142	1.46	1.39
Delaware	87,889	85,944	20,993	20,909	†	†	108,882	106,853	.21	.22
District of Columbia	161,065	164,811	18,602	18,372	2,008	1,964	181,675	185,147	.35	.38
Florida	905,502	805,001	187,219	175,240	6,418	5,938	1,099,139	986,179	2.14	2.04
Georgia	751,349	691,457	203,825	192,845	3,534	3,593	958,708	887,895	1.87	1.84
Idaho	200,225	195,520	75,800	71,405	†	†	276,025	266,925	.54	.55
Illinois	2,429,400	2,281,932	364,000	321,738	8,780	6,352	2,802,180	2,610,022	5.46	5.41
Indiana	1,252,198	1,173,827	215,724	244,258	6,775	7,710	1,474,697	1,425,595	2.87	2.95
Iowa	891,568	878,606	188,278	181,748	†	†	1,079,846	1,060,354	2.10	2.20
Kansas	677,959	648,852	215,097	203,722	†	†	893,036	852,574	1.74	1.77
Kentucky	645,000	604,244	176,800	167,342	1,900	1,906	823,700	773,492	1.60	1.60
Louisiana	569,733	552,787	161,426	151,749	3,856	3,647	735,015	708,183	1.43	1.47
Maine	208,134	210,434	63,353	64,195	467	394	271,954	275,023	.53	.57
Maryland	614,488	570,922	99,894	95,888	4,236	3,943	718,618	670,753	1.40	1.39
Massachusetts	1,162,034	1,100,674	169,543	165,850	6,193	5,431	1,337,770	1,271,955	2.61	2.63
Michigan	2,214,284	2,170,636	311,948	294,825	†	†	2,526,232	2,405,461	4.92	4.98
Minnesota	1,000,724	944,272	202,536	188,390	3,436	3,245	1,206,696	1,136,507	2.35	2.35
Mississippi	326,094	306,064	169,140	139,442	2,723	4,124	497,957	449,630	.97	.93
Missouri	1,039,000	990,264	285,000	261,607	†	†	1,324,000	1,251,871	2.58	2.59
Montana	186,957	178,643	84,252	78,210	†	†	271,209	256,853	.53	.53
Nebraska	596,550	442,046	126,500	123,933	825	1,077	723,875	567,056	1.41	1.17
Nevada	64,857	58,773	18,753	16,023	†	†	83,610	74,796	.16	.15
New Hampshire	140,000	136,547	32,000	39,347	†	†	172,000	175,894	.33	.36
New Jersey	1,442,467	1,344,521	225,371	208,738	9,776	10,440	1,677,614	1,563,759	3.27	3.24
New Mexico	186,377	169,481	65,889	60,123	1,567	1,040•	253,833	230,644	.49	.48
New York	3,376,500	3,239,825	463,500	471,872	11,500	15,673	3,851,500	3,727,370	7.50	7.72
North Carolina	889,373	830,925	209,465	201,881	8,211	8,226	1,107,049	1,041,032	2.16	2.16
North Dakota	194,428	191,206	84,635	81,967	181	101	279,244	273,274	.54	.57
Ohio	2,531,150	2,366,114	354,595	327,559	7,414	3,900	2,893,159	2,697,573	5.63	5.59
Oklahoma	641,258	618,073	211,365	201,160	1,681	1,698	854,304	820,931	1.66	1.70
Oregon	616,417	545,959	83,841	130,979	1,944	1,252	702,202	678,190	1.37	1.40
Pennsylvania	2,763,202	2,575,219	530,000	508,927	12,896•	12,684•	3,306,098	3,096,830	6.44	6.42
Rhode Island	227,758	215,718	32,056	30,828	763	603	260,572	247,149	.51	.51
South Carolina	481,357	445,962	116,983	109,367	4,778	4,507	603,118	559,836	1.17	1.16
South Dakota	221,910	215,084	75,481	70,888	319	309	297,710	286,281	.58	.59
Tennessee	690,246	639,325	188,726	163,946	...	...	878,972	803,271	1.71	1.66
Texas§	2,453,160	2,316,279	659,999	613,485	5,212	5,248	3,118,361	2,935,012	6.07	6.08
Utah	212,439	196,614	51,203	46,117	1,128	453	264,770	243,184	.52	.50
Vermont	106,382	103,050	14,941	14,911	157	159	121,480	118,120	.24	.24
Virginia	804,916	762,300	196,383	165,429	2,632	2,463	1,003,931	930,192	1.96	1.93
Washington	782,742	745,724	163,772	155,708	1,754	1,747	948,268	903,179	1.85	1.87
West Virginia	336,592	324,516	95,400	101,361	1,048	1,337	432,950	427,214	.84	.89
Wisconsin	1,000,066	957,414	228,277	221,368	2,737	2,618	1,231,080	1,181,400	2.40	2.45
Wyoming	112,276	103,177	42,729	38,641	*	*	155,005	141,818	.30	.29
Total	42,602,867	39,952,969	8,609,819	8,185,948	134,716	132,773	51,347,402	48,271,690	100.00	100.00

* Includes taxicabs. † Included with trucks. ‡ Included with passenger cars. § 1951 and 1950 not comparable as 1951 is calendar year data and 1950 is registration year.

Note: In the above tabulation we have endeavored to make as accurate a count as existing conditions permit. This census is compiled from material secured direct from the state motor vehicle commissioners. Wherever possible, duplications, occasioned by transfers and non-resident registrations, have been eleminated. Data are for the registration year rather than the calendar year, even though this necessitates partial estimates, in the case of those states whose registration year ends February or March of the following year.

Estimated Scrappage of Motor Vehicles

Year	Passenger Cars	Trucks	Total Motor Vehicles
1928	1,973,540	135,038	2,108,578
1929	2,127,944	288,494	2,416,438
1930	2,713,655	293,532	3,007,187
1931	2,460,257	299,871	2,760,128
1932	2,522,936	405,950	2,928,886
1933	2,380,393	301,160	2,681,553
1934	910,851	350,057	1,260,908
1935	1,765,392	211,954	1,977,346
1936	1,873,780	209,364	2,083,144
1937	2,171,398	373,042	2,544,440
1938	1,983,218	374,438	2,357,656
1939	1,770,165	273,373	2,043,541
1940	2,323,228	372,544	2,695,772
1941	1,731,224	412,083	2,143,307
1942†	1,861,579	248,114	2,109,693
1943†	2,048,119	145,885	2,194,004
1944†	608,306	167,185	775,491
1945†	+23,308	+62,335	+90,643
1946†	+620,523	+208,331	+828,854
1947	519,767	+16,311	503,456
1948	961,179	320,718	1,281,897
1949	1,614,192	658,821	2,273,013
1950	2,609,399	727,211	3,336,610
1951*	2,411,005	579,979	2,990,984

† The actual computations for the years 1942 through 1946 give unrealistic scrappage estimates for these years because of the cars and trucks being placed in storage during 1942 and then being returned to service at the end of the war.

+ Indicates the increase in number of registrations over the number of new vehicles sold.

* Preliminary data.

These estimated scrappage data were computed from total registrations of cars and trucks as compiled by Automotive Industries and new registrations of cars and trucks as reported by R. L. Polk & Co.

Ranking of the States According to 1951 Total Registrations

Rank	State	Registrations Units	% of Total
1	California	4,768,000	9.20
2	New York	3,851,500	7.50
3	Pennsylvania	3,306,098	6.44
4	Texas	3,118,361	6.07
5	Ohio	2,893,159	5.63
6	Illinois	2,802,180	5.46
7	Michigan	2,256,232	4.92
8	New Jersey	1,677,614	3.27
9	Indiana	1,474,697	2.87
10	Massachusetts	1,337,770	2.61
11	Missouri	1,324,000	2.58
12	Wisconsin	1,231,080	2.40
13	Minnesota	1,206,696	2.35
14	North Carolina	1,107,049	2.16
15	Florida	1,099,139	2.14
16	Iowa	1,079,846	2.10
17	Virginia	1,003,931	1.96
18	Georgia	958,708	1.87
19	Washington	948,268	1.85
20	Kansas	893,036	1.74
21	Tennessee	878,972	1.71
22	Oklahoma	854,304	1.66
23	Kentucky	823,700	1.60
24	Connecticut	747,512	1.46
25	Louisiana	735,015	1.43
26	Nebraska	723,875	1.41
27	Maryland	718,618	1.40
28	Oregon	702,202	1.37
29	Alabama	671,098	1.31
30	South Carolina	603,118	1.17
31	Mississippi	587,651	1.14
32	Colorado	497,957	.97
33	Arkansas	484,702	.94
34	West Virginia	432,950	.84
35	South Dakota	297,710	.58
36	Arizona	280,395	.55
37	North Dakota	279,244	.54
38	Idaho	276,025	.54
39	Maine	271,954	.53
40	Montana	271,209	.53
41	Utah	264,770	.52
42	Rhode Island	260,572	.51
43	New Mexico	253,833	.49
44	Dist. of Col.	181,675	.35
45	New Hampshire	172,000	.33
46	Wyoming	155,005	.30
47	Vermont	121,480	.24
48	Delaware	108,882	.21
49	Nevada	83,610	.16
	Total	51,347,402	100.00

Taxicab, Motorcycle and Trailer Registrations, by States

State	Taxicabs‖ 1951	1950	1949	Motorcycles 1951	1950	1949	1951 Trailers and Semi-Trailers Tourist	Commercial	Total
Alabama	2,958	2,914	3,245	6,874	6,984	7,915	....	....	11,886
Arizona	195	190	....	3,400	3,617	3,548	12,200	9,500	22,700
Arkansas	853	921	1,037	1,993	2,326	2,903	....	....	25,713
California	†	†	6,856	52,800	54,948	57,475	....	....	371,000
Colorado	•	•	•	4,257	4,587	4,749	....	....	25,585
Connecticut	782	668	538	4,103	3,764	3,926	15,367	6,955	22,322
Delaware	•	•	•	530	623	672	....	....	4,252
Dist. of Columbia	10,682	10,121	9,225	687	799	836	....	....	1,523
Florida	12,595	9,391	8,679	15,226	15,662	16,069	75,977	12,305	88,282
Georgia	•	•	....	7,421	8,021	8,881	3,273	28,366	31,639
Idaho	225	238	284	2,500	2,764	2,987	25,000	520	25,520
Illinois	9,600	9,734	10,040	24,000	26,039	28,048	5,000	58,000	63,000
Indiana	•	•	•	21,328	20,543	22,673	....	....	125,567
Iowa	•	•	•	10,599	11,502	11,742	....	....	114,017
Kansas	•	•	•	7,801	8,113	8,858	....	....	16,451
Kentucky	•	•	•	5,400	7,547	8,374	....	....	N.L.
Louisiana	3,524	3,650	3,856	5,285	6,104	6,970	1,770	31,547	33,311
Maine	1,081	1,195	1,210	2,299	2,555	2,670	....	....	21,139
Maryland	2,675	2,599	2,800	5,425	6,337	6,944	....	....	15,900
Massachusetts	•	•	•	5,170	5,562	6,228	....	....	56,686
Michigan	....	....	....	19,170	19,559	15,562	15,084	227,222	242,306
Minnesota	....	....	....	10,790	11,633	12,255	26,029	35,803	61,832
Mississippi	981	2,284	2,658	2,308	2,229	2,550	13,380	4,298	17,678
Missouri	•	•	•	8,000	8,150	8,107	....	....	90,000
Montana	•	•	•	1,128	1,223	1,366	....	....	7,764
Nebraska	550	546	645	4,500	4,822	4,978	4,250	8,500	12,750
Nevada	....	....	....	724	572	579	....	....	5,078
New Hampshire	....	....	....	1,200	1,832	1,892	....	....	5,500
New Jersey	....	3,235	3,352	9,425	9,438	9,928	....	....	27,682
New Mexico	468	1,032	1,066	2,772	2,567	2,461	....	....	7,884
New York	24,000	24,144	25,201	25,000	24,733	25,449	....	....	118,000
North Carolina	4,674	4,637	5,454	10,206	11,690	13,641	....	....	77,140
North Dakota	•	•	•	914	1,050	1,247	2,443	841	3,284
Ohio	•	•	•	25,875	25,154	25,279	....	....	198,195
Oklahoma	2,266	2,495	2,649	6,696	7,240	7,711	2,255	11,905	14,160
Oregon	•	•	•	6,031	7,742	7,373	....	....	†
Pennsylvania	‡	‡	‡	26,493	26,522	29,327	....	....	94,857
Rhode Island	214	347	358	1,671	1,728	1,906	....	....	5,042
South Carolina	2,848	2,845	3,533	5,727	5,506	6,619	1,324	11,735	13,059
South Dakota	....	....	....	1,705	1,976	2,117	....	....	31,261
Tennessee	6,257	5,517	6,600	8,496	7,761	8,838	....	....	....
Texas	•	•	•	26,900	27,118	29,042	24,543	126,221	150,764
Utah	....	....	....	1,356	1,596	1,824	....	....	2,243
Vermont	•	•	•	887	942	1,010	....	....	6,781
Virginia	5,701	5,229	4,245	11,127	11,136	11,583	24,725	13,016	37,741
Washington	....	1,800	1,868	5,806	6,486	7,283	....	....	48,992
West Virginia	1,419	1,100	773	3,847	3,952	4,774	2,642	1,876	4,518
Wisconsin	•	•	•	9,388	10,152	11,027	5,413	12,001	17,414
Wyoming	•	•	•	....	1,047	1,175	....	....	15,995
Total	94,548	97,373	106,172	425,241	443,954	469,872	....	....	2,394,414

• Included with passenger cars. † Included with trucks. ‡ Included with buses. N.L.—Not Licensed.

‖ Taxicab registrations which were included in passenger cars in the table of U. S. Motor Vehicle Registrations by States.

TRACTORS ON FARMS

Cars, Trucks and Tractors on Farms—by States

1950 Compared with 1945

As reported by the Census of Agriculture, Bureau of the Census.

State	Passenger Cars 1950	Passenger Cars 1945	% Change 1950 Over 1945	Trucks 1950	Trucks 1945	% Change 1950 Over 1945	Tractors 1950	Tractors 1945	% Change 1950 Over 1945	Total Automotive Equipment 1950	Total Automotive Equipment 1945
Alabama	71,276	58,449	21.94	52,801	23,949	120.47	45,962	17,060	169.41	170,039	99,458
Arizona	11,775	12,356	—4.71	8,611	6,859	25.54	9,748	6,372	52.98	30,134	25,587
Arkansas	65,197	53,926	20.90	63,589	33,134	91.91	61,042	26,537	130.02	189,828	113,596
California	172,148	160,252	7.42	110,724	85,696	29.20	124,963	79,839	56.51	407,835	325,787
Colorado	48,942	44,529	9.91	42,663	28,794	48.16	32,174	25,386	26.72	123,779	98,709
Connecticut	18,439	25,188	—26.80	13,198	15,651	—15.38	11,949	9,740	22.67	43,586	50,579
Delaware	7,063	9,537	—25.95	4,059	3,800	6.81	6,130	4,604	33.14	17,252	17,941
Dist. of Columbia	29	22	31.81	15	35	—57.15	4	21	—80.96	48	78
Florida	36,123	31,721	13.87	29,267	21,639	35.25	22,033	12,812	71.97	87,423	66,172
Georgia	100,586	90,100	11.63	63,022	34,688	81.68	60,991	24,648	147.44	224,599	149,436
Idaho	39,980	35,802	11.66	29,690	19,096	55.47	39,397	20,299	94.08	109,067	75,197
Illinois	196,183	200,914	—2.36	86,789	56,629	53.25	235,293	174,270	35.01	518,265	431,813
Indiana	159,273	165,796	—3.94	55,816	38,411	45.31	154,040	105,263	46.33	369,129	309,470
Iowa	238,541	224,216	1.92	62,612	37,386	67.47	241,090	181,049	33.16	532,243	442,651
Kansas	133,966	133,593	.27	89,354	60,908	46.70	146,498	116,651	25.58	369,818	311,152
Kentucky	119,881	102,997	6.39	55,032	27,194	102.36	59,193	24,409	142.50	234,106	154,600
Louisiana	56,515	40,651	39.02	36,445	20,974	73.76	36,059	17,630	104.53	129,019	79,255
Maine	23,937	30,095	—21.47	19,197	17,849	7.55	16,675	14,794	12.71	59,809	62,738
Maryland	36,446	41,485	—12.15	21,428	19,197	11.62	29,885	18,789	59.05	87,759	79,471
Massachusetts	21,457	32,901	—34.79	15,385	18,751	—17.96	14,720	14,026	4.94	51,562	65,678
Michigan	164,763	172,655	—6.21	56,976	41,303	37.94	149,372	110,120	35.64	371,111	324,078
Minnesota	195,959	191,691	2.22	70,528	47,413	48.75	204,361	152,555	33.95	470,848	391,659
Mississippi	76,250	59,906	27.28	56,249	28,267	98.99	52,618	21,077	149.64	185,117	109,250
Missouri	162,558	165,243	—1.63	77,464	47,225	64.03	125,964	76,110	65.50	365,986	288,578
Montana	35,077	31,569	11.11	38,272	29,388	31.93	44,991	31,725	41.81	118,840	92,682
Nebraska	121,220	118,572	2.23	54,398	33,761	61.12	127,652	96,203	32.69	303,270	248,536
Nevada	3,066	3,044	.72	3,123	2,603	19.97	3,313	1,827	81.33	9,502	7,474
New Hampshire	12,073	14,987	—19.45	8,853	9,191	—3.68	7,096	6,094	16.44	28,022	30,272
New Jersey	27,976	27,875	.36	24,279	23,220	4.56	26,181	19,809	32.16	78,436	70,904
New Mexico	15,110	15,356	—1.61	15,098	11,902	26.85	15,871	10,735	47.84	46,079	37,993
New York	129,972	144,948	—10.34	72,463	69,141	4.80	119,706	93,292	28.31	322,141	307,381
North Carolina	160,067	152,109	5.23	60,406	32,924	83.47	73,534	31,189	135.76	294,007	216,222
North Dakota	73,707	69,235	6.45	55,640	36,674	51.71	98,672	73,984	33.36	228,019	179,893
Ohio	208,087	221,587	—6.10	64,765	42,808	51.29	182,571	130,486	39.91	455,423	384,881
Oklahoma	95,224	100,584	—5.33	68,895	44,381	55.23	93,804	70,395	33.25	257,923	215,360
Oregon	61,907	59,362	4.28	39,641	28,118	40.93	52,514	28,646	83.32	153,882	116,126
Pennsylvania	151,763	165,166	—8.12	66,113	56,271	17.49	125,907	92,638	35.91	343,783	314,075
Rhode Island	2,773	3,965	—30.07	2,445	3,142	—22.19	1,939	1,962	—1.18	7,157	9,069
South Carolina	81,579	77,576	5.16	29,757	15,348	93.88	30,329	12,447	143.66	141,665	105,371
South Dakota	77,319	68,717	10.90	37,796	22,230	70.02	88,991	62,772	41.76	204,106	153,719
Tennessee	113,774	91,392	24.49	60,222	26,326	128.75	59,803	24,052	148.64	233,800	141,770
Texas	255,100	259,599	—1.74	147,246	89,286	64.91	233,375	162,381	43.72	635,721	511,266
Utah	20,773	20,303	2.31	15,352	10,969	39.95	15,997	6,876	132.64	52,122	38,148
Vermont	16,580	19,663	—15.68	10,595	9,567	10.74	10,655	7,327	45.42	37,830	36,557
Virginia	94,036	94,413	—.40	49,087	31,956	53.60	48,356	23,418	106.49	191,479	149,787
Washington	69,571	74,205	—6.25	48,245	40,034	20.51	55,055	32,050	71.77	172,871	146,289
West Virginia	37,271	40,477	—7.93	24,631	16,285	51.24	14,005	6,863	104.06	75,907	63,625
Wisconsin	183,108	181,107	1.10	74,474	61,010	22.06	171,673	123,280	39.25	429,255	365,397
Wyoming	12,912	11,445	12.81	12,600	8,917	41.30	15,606	9,855	58.35	41,118	30,217
Total	4,207,332	4,151,280	1.35	2,205,811	1,490,750	47.96	3,597,307	2,414,367	48.99	10,010,720	8,045,947

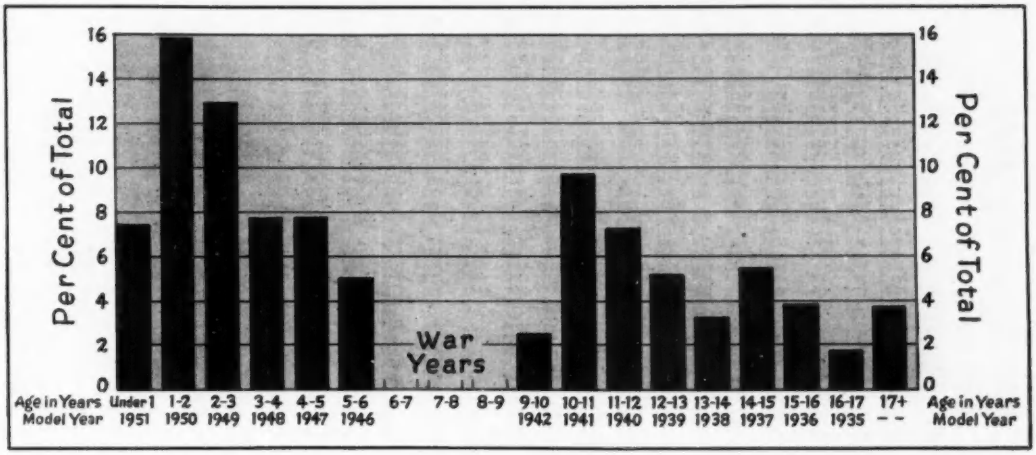
Farm Expenditures for Petroleum Products and Tractor Repairs

As reported by the Census of Agriculture, Bureau of the Census.

State	EXPENDITURES FOR Petroleum Products*	EXPENDITURES FOR Tractor Repairs	State	EXPENDITURES FOR Petroleum Products*	EXPENDITURES FOR Tractor Repairs	State	EXPENDITURES FOR Petroleum Products*	EXPENDITURES FOR Tractor Repairs
Alabama	$12,045,794	$4,213,819	Maine	$5,114,920	$1,498,509	Oklahoma	$27,816,327	$10,489,173
Arizona	6,953,089	2,739,883	Maryland	7,978,222	2,675,975	Oregon	14,452,343	5,483,296
Arkansas	19,746,075	8,180,450	Massachusetts	3,891,931	1,120,109	Pennsylvania	27,021,387	9,113,821
California	58,710,203	28,023,263	Michigan	29,380,756	10,029,991	Rhode Island	689,916	191,460
Colorado	22,912,919	6,896,353	Minnesota	65,816,944	18,289,803	South Carolina	11,316,941	3,265,649
Connecticut	3,348,400	1,056,376	Mississippi	15,862,901	6,891,344	South Dakota	34,891,485	10,075,818
Delaware	1,820,262	719,820	Missouri	32,541,399	11,764,193	Tennessee	14,429,272	4,847,328
Dist. of Colo.	1,670	300	Montana	21,722,056	6,309,587	Texas	86,644,149	35,854,204
Florida	10,770,602	4,344,074	Nebraska	47,357,104	14,557,323	Utah	6,087,420	1,514,736
Georgia	20,422,528	6,945,357	Nevada	1,708,494	456,504	Vermont	2,937,231	702,894
Idaho	15,085,930	4,964,803	New Hampshire	1,536,568	356,081	Virginia	11,809,926	3,667,475
Illinois	73,039,490	25,975,864	New Jersey	7,739,601	2,652,685	Washington	16,837,767	6,761,071
Indiana	41,399,547	14,160,310	New Mexico	7,585,050	2,548,771	West Virginia	2,929,775	637,381
Iowa	75,592,916	24,986,767	New York	27,763,061	9,451,823	Wisconsin	42,076,329	12,151,399
Kansas	51,257,315	18,999,616	North Carolina	25,057,311	5,344,189	Wyoming	6,599,248	1,815,328
Kentucky	14,899,008	4,696,781	North Dakota	44,603,611	11,452,778			
Louisiana	13,016,114	6,019,207	Ohio	40,742,074	13,638,872	Total	$1,133,963,381	$388,532,613

* Includes gasoline and other petroleum fuel and oil.

57% OF CARS IN USE ARE POSTWAR MODELS



Number and Per Cent of Cars in Use, by Age Groups*

Age in Years	1951 Units	1951 % of Total Simple	1951 % of Total Cumul.	1950 Units	1950 % of Total Simple	1950 % of Total Cumul.	1949 Units	1949 % of Total Simple	1949 % of Total Cumul.	1948 Units	1948 % of Total Simple	1948 % of Total Cumul.
Under 1	2,858,409	7.44	7.44	2,988,755	8.34	8.34	2,638,026	8.09	8.09	1,673,487	5.63	5.63
1-2	6,114,348	15.92	23.26	4,934,895	13.78	22.12	2,980,927	9.14	17.23	3,100,367	10.43	16.06
2-3	4,987,648	12.99	36.35	3,033,107	8.47	30.59	3,065,637	9.40	26.63	2,048,095	6.89	22.95
3-4	2,963,958	7.72	44.07	3,052,019	8.52	39.11	2,046,674	6.27	32.90	.....	.....	.....
4-5	2,987,019	7.78	51.85	2,932,478	8.47	44.78	.....	.....	.....	.....	.....	.....
5-6	1,974,844	5.14	56.99	.....	.....	.....	.....	.....	.....	.....	.....	.....
6-7	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,012,305	3.41	26.36
7-8	.....	.....	.....	.....	.....	.....	1,006,337	3.09	25.99	4,044,717	13.48	39.84
8-9	.....	.....	.....	998,669	2.79	47.57	4,004,581	12.28	48.27	2,093,315	10.41	50.25
9-10	966,493	2.52	59.51	3,954,540	11.04	58.61	3,089,109	9.47	57.74	2,345,276	7.89	58.14
10-11	3,760,692	9.79	69.30	3,023,187	8.47	67.08	2,326,487	7.13	64.87	1,661,648	5.59	63.73
11-12	2,793,906	7.27	76.57	2,244,564	6.26	73.34	1,621,176	4.97	69.84	3,186,089	10.72	74.45
12-13	1,995,717	5.20	81.77	1,489,681	4.16	77.50	3,074,764	9.42	79.27	2,657,338	8.94	83.39
13-14	1,243,875	3.24	85.01	2,709,388	7.56	85.06	2,495,486	7.65	86.92	1,489,556	5.01	88.40
14-15	2,126,403	5.54	90.55	2,074,556	5.79	90.85	1,334,612	4.09	91.01	885,957	2.98	91.38
15-16	1,492,890	3.89	94.44	1,052,918	2.94	93.79	762,086	2.34	93.35	508,667	1.71	93.09
16-17	687,972	1.79	96.23	567,062	1.58	95.37	434,765	1.33	94.68	316,956	1.07	94.16
17 and older	1,451,334	3.77	....	1,656,896	4.63	....	1,737,780	5.32	....	1,731,288	5.84	....
Total	38,405,309	100.00	100.00	35,822,715	100.00	100.00	32,618,445	100.00	100.00	29,715,061	100.00	100.00
Age not known	110,229	....	....	99,571	....	....	112,273	....	....	252,658	....	....
Total	38,515,538	....	....	35,922,286	....	....	32,730,718	....	....	29,967,719	....	....
Average age of known models	7.04 yrs.			7.31 yrs.			8.44 yrs.			8.73 yrs.		

Number and Per Cent of Trucks in Use, by Age Groups*

Age in Years	1951 Units	1951 % of Total Simple	1951 % of Total Cumul.	1950 Units	1950 % of Total Simple	1950 % of Total Cumul.	1949 Units	1949 % of Total Simple	1949 % of Total Cumul.	1948 Units	1948 % of Total Simple	1948 % of Total Cumul.
Under 1	511,222	6.38	6.38	549,909	7.31	7.31	468,471	6.70	6.70	525,189	8.06	8.06
1-2	1,091,502	13.63	20.01	942,603	12.53	19.84	983,653	14.06	20.76	832,635	12.79	20.85
2-3	944,753	11.80	31.81	983,383	13.07	32.91	824,162	11.78	32.54	769,516	11.82	32.67
3-4	971,056	12.13	43.94	816,705	10.77	43.68	757,071	10.82	43.36	185,514	2.85	35.53
4-5	787,053	9.83	53.77	742,735	9.87	53.55	173,416	2.48	45.84	85,481	1.31	36.83
5-6	717,101	8.95	62.72	166,019	2.21	55.76	78,436	1.12	46.96	26,456	.41	37.24
6-7	158,353	1.98	64.70	73,970	.98	56.74	24,653	.35	47.31	297,128	4.56	41.80
7-8	70,012	.87	65.57	23,632	.31	57.05	279,870	4.00	51.31	661,726	10.16	51.96
8-9	24,438	.31	65.88	244,297	3.51	60.56	629,246	8.99	60.30	490,969	7.54	59.50
9-10	243,376	3.04	68.92	586,264	7.79	68.35	459,529	6.57	66.87	385,731	5.92	65.42
10-11	533,623	6.66	75.58	429,734	5.71	74.06	358,675	5.12	72.00	286,537	4.38	69.80
11-12	381,843	4.77	80.35	326,111	4.33	78.39	261,282	3.73	75.73	461,843	7.09	76.89
12-13	285,628	3.57	83.92	231,091	3.07	81.46	419,275	5.99	81.72	418,478	6.43	83.32
13-14	199,547	2.49	86.41	364,745	4.85	86.31	372,740	5.35	87.05	257,376	3.95	87.27
14-15	305,483	3.81	90.22	315,551	4.19	90.50	224,843	3.21	90.26	828,286*	12.73	....
15-16	252,774	3.16	93.38	184,506	2.45	92.95	153,335	2.19	92.45	.....	.....	.....
16-17	144,376	1.80	95.18	121,313	1.62	94.57	71,624	1.02	93.47	.....	.....	.....
17 and older	385,706	4.82	....	408,316	5.43	....	456,641	6.53	....	.....	....	....
Total	8,008,108	100.00	100.00	7,524,884	100.00	100.00	6,996,323	100.00	100.00	6,511,965	100.00	100.00
Age not known	56,775	....	....	52,153	....	....	90,806	....	....	93,325	....	....
Total in use	8,064,883	....	....	7,577,037	....	....	7,087,129	....	....	6,605,290	....	....
Average age of known models	6.55 yrs.			6.96 yrs.			7.35 yrs.			7.43 yrs.		

* Based on data from Reuben H. Donnelley Corp. as of July 1, of each year

• TOTAL REGISTRATIONS •

CARS IN USE BY MAKES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
BUICK	'51	2124	591	1057	14805	2183	2692	712	938	2673	3558	680	15050	5252	3359	2484	1989	1724	725	2199	4264	14438	4197	1633	1712	725
	'50	7572	3148	4293	50261	6913	8800	1372	3150	14291	11897	3139	46481	16663	11655	8966	7163	8392	2617	7808	15484	38515	15144	5359	12522	2823
	'49	2985	1276	1702	27138	2979	4966	686	1848	6826	4190	1432	24557	8573	5539	4001	3491	3976	1349	4173	10197	17158	5811	2100	6316	1247
	'48	1532	863	875	21106	1919	3412	437	1240	4260	2652	873	15757	5647	3340	2419	2193	2074	911	2630	6822	12408	3357	1106	4109	724
	'47	1938	1215	1094	23814	2470	4095	543	1553	5567	3088	1013	18701	7078	3630	2864	2648	2566	1069	3250	7902	12274	4094	1376	4647	774
	'46	1204	737	642	13437	1381	2457	311	961	3210	1737	534	10337	3962	2055	1572	1580	1470	664	1818	4443	6356	2270	763	2564	456
	'45-'42	966	520	408	6840	921	1371	151	350	2001	1162	395	5131	2073	1171	1009	1070	986	363	892	2213	3451	1129	638	1567	275
	'41	3216	2007	1490	40819	3718	6106	724	1773	8190	4290	1439	20427	9209	4651	4065	4278	3800	1482	4094	10175	14585	5982	2013	6358	1101
	'40	2033	1260	1011	30754	2449	5214	611	1330	5520	2548	925	14951	6283	3555	2658	2906	2190	1518	3490	9280	10194	4494	1186	4566	740
	'39	1328	820	636	19614	1720	3781	450	695	3238	1685	550	9240	3510	2689	1882	1971	1418	1003	2242	6208	5770	3337	804	3109	526
	'38	781	626	376	14209	1157	2952	322	557	2113	1039	384	6201	2431	1846	1201	1288	791	780	1818	4334	3374	2433	398	2026	335
	'37	719	758	396	17888	1642	3580	409	416	2183	948	474	6786	3012	2076	1508	1503	677	899	2127	5131	5268	2583	429	2423	413
	'36	311	399	221	10864	942	1972	237	203	1211	512	241	3016	1522	1117	813	716	394	631	1120	3307	2005	1542	202	1274	247
	'35	61	94	36	3221	117	360	51	31	256	113	36	608	460	291	197	188	58	152	230	635	359	362	48	306	37
	Before '35	134	253	89	6730	563	1234	150	90	497	280	147	1478	564	782	490	313	115	475	618	1550	990	1034	102	817	117
	Unid.*	30	14	66	173	13	239	18	929	339	441	8	468	45	32	20	64	48	3	167	25	884	25	77	103	4
	Total	26542	14703	14382	303468	31087	53233	7184	16064	62366	40140	12270	199171	76284	47788	36149	33321	30587	14641	38678	91670	147831	58404	18238	54621	10544
CADILLAC	'51	459	215	249	5300	506	886	148	416	1097	818	178	3880	1288	710	506	418	563	195	489	1095	4813	925	323	477	204
	'50	796	467	435	14248	932	1378	296	685	3058	1294	393	7734	2028	1296	949	716	1136	396	958	2586	5376	1529	598	1794	356
	'49	650	462	415	12734	831	1440	161	670	3179	1215	345	6794	1872	1060	784	702	1089	367	925	2490	3642	1289	470	1568	300
	'48	345	247	146	7316	436	931	95	407	1836	648	140	4173	1074	457	322	346	514	199	564	1519	2044	598	233	851	142
	'47	357	337	188	7521	490	1108	106	481	2173	715	128	4536	1164	477	270	431	522	248	670	1805	2147	621	208	846	81
	'46	154	150	70	3788	229	584	51	236	1045	396	54	1884	520	197	114	205	248	113	322	909	782	314	82	389	42
	'45-'42	135	88	43	2221	163	320	27	97	437	202	26	985	262	105	87	144	158	65	164	521	478	183	59	218	24
	'41	429	426	168	10866	611	1498	123	441	2244	811	115	3806	1094	391	305	539	599	291	629	2199	1630	682	180	1013	100
	'40	111	73	38	2478	126	293	25	102	473	138	27	718	233	72	44	99	103	59	138	520	301	118	29	189	23
	'39	77	65	28	1915	111	263	23	61	314	116	16	593	147	67	55	97	80	56	134	449	250	131	34	169	24
	'38	38	46	22	1315	77	186	15	48	236	57	16	324	96	32	39	44	38	42	79	329	171	64	12	107	8
	'37	38	67	17	1294	82	267	21	38	235	76	9	308	130	52	33	63	41	42	110	474	148	80	13	88	10
	'36	15	27	4	960	46	127	13	20	113	32	10	148	52	32	22	39	16	33	50	254	76	56	8	66	10
	'35	1	11	1	345	5	19	2	5	16	5	3	18	8	9	3	9	1	4	5	44	12	9		6	2
	Before '35	4	33	6	919	27	131	11	10	57	41	5	78	31	32	8	22	15	27	39	129	46	40	10	35	11
	Unid.*	3	2	8	45	7	47	2	104	153	67	1	66	11	5	3	11	6	2	35	7	71	3	8	22	
	Total	3621	2716	1836	73259	4673	9478	1119	3838	16668	6822	1468	36045	10010	4996	3544	3907	5129	2133	5312	15330	21985	6824	2267	7840	1337
CHEVROLET	'51	9099	2629	5024	43488	6304	8764	1955	3862	10370	14010	2301	45554	21150	13784	9645	9079	8820	3351	9639	14916	53084	15606	6084	9698	2915
	'50	19738	6342	10966	100811	12222	15986	3939	6648	26641	24842	5442	81390	38747	28127	21280	18390	21788	5733	17512	30267	88305	28868	11980	38043	6332
	'49	14322	5057	7357	78103	9787	12056	2128	5006	19129	17796	4799	63671	31212	23463	17018	14457	16548	4673	13959	24450	59580	22389	9121	29564	4725
	'48	10755	2868	5994	81230	7288	8295	1443	3113	11688	11933	2846	41735	20693	16997	12486	10657	10820	3307	9584	16751	35713	16385	6487	20796	3104
	'47	10440	2993	5636	48614	7615	7578	1325	2589	11492	11830	2963	38060	19774	16439	12656	10496	10316	2932	8645	18241	31461	15578	5886	18343	2925
	'46	6852	1870	3595	29506	4449	4889	788	1345	7132	7679	1902	22043	11713	9043	7457	6829	5915	1951	5325	8894	17089	9386	3887	10658	1684
	'45-'42	4938	1424	2503	18574	2763	2736	404	487	4495	5472	1185	10297	6524	5321	4542	4418	3821	1210	2720	4611	9672	5466	2818	6145	958
	'41	18914	5313	9589	89172	11400	12163	1895	2097	17267	19612	4501	43291	27816	21703	19340	18418	14286	4992	11835	22237	38967	22757	9898	27377	3824
	'40	12546	3694	7161	64168	7991	9498	1627	1374	12421	14473	3445	33556	20894	15772	13371	13943	9649	4101	9585	17452	28616	17895	7158	22949	3053
	'39	9785	2716	5478	42628	6805	6634	1090	778	8172	10794	2395	23259	13008	10173	10257	10117	6974	3062	6509	13646	18331	13677	5545	17288	2249
	'38	5020	2099	3270	33767	4795	4440	788	459	5116	5124	1613	17059	9827	12513	9281	7403	4722	2215	4613	9174	11108	13529	3355	13165	1433
	'37	8070	3192	4362	50273	7075	7864	1359	580	7570	8108	2967	23418	16988	15799	12293	11563	8432	3300	7690	18712	22209	16975	4443	17502	2258
	'36	5526	2652	3429	46581	6185	5578	1074	402	6114	6212	2505	17266	14287	12871	10597	8449	4553	2963	5444	11377	15727	15709	3694	15464	2225
	'35	1933	1417	1320	23747	2256	2157	452	164	2384	2673	1003	5791	5484	4728	4248	3452	1484	1202	2013	4634	4471	6496	1365	6294	882
	Before '35	3078	1882	2286	45829	4984	4278	922	198	4096	4398	1811	10409	7184	10735	8851	6064	2873	2556	3788	6148	8043	13533	2437	13962	1704
	Unid.*	122	52	328	558	52	556	49	1902	767	1940	39	927	131	168	161	346	118	15	486	38	4373	56	313	487	10
	Total	141128	46212	79292	766847	101968	113440	21238	31004	154856	166896	41897	477126	285633	224430	173483	154081	128319	47511	112349	215550	446949	234305	84559	263606	40281
CHRYSLER	'51	588	214	296	7427	814	1084	204	440	889	821	222	5834	1948	1278	763	669	609	261	851	1764	4236	1658	451	485	282
	'50	1595	709	858	16031	1820	2465	271	1051	3681	2163	685	10670	4102	3215	2182	1762	1814	692	2086	4131	8033	4229	1244	3100	713
	'49	1247	558	778	11248	1553	1994	235	815	3188	1581	600	9731	3715	2781	2138	1624	1529	552	1884	3860	6269	3547	938	3066	622
	'48	968	503	579	9418	1319	1366	189	600	2335	1374	502	7113	2601	2004	1645	1265	1366	454	1383	3043	4619	2497	851	2275	463
	'47	870	564	421	9396	1130	1381	159	497	2298	1119	463	6342	2536	1766	1441	1175	1065	385	1232	2705	4356	2220	688	1932	445
	'46	690	431	297	7479	798	1162	129	397	1765	716	292	4560	1834	1126	807	754	568	304	958	2200	2746	1450	359	1260	291
	'45-'42	268	199	124	4269	344	492	48	165	882	334	122	1580	763	387	324	360	326	106	366	847	1053	636	144	521	102
	'41	1084	969	547	20861	1695	2498	262	777	3669	1432	556	8005	3567	1895	1499	1587	1138	511	1973	3916	5250	2748	594	2408	566
	'40	704	453	339	10593	970	1335	156	355	1819	699	324	4188	2095	1116	976	1008	556	351	1215	2318	3105	1529	352	1403	324
	'39	417	316	194	7413	622	931	114	228	1081	426	191	2688	1232	814	696	697	390	222	869	1772	1730	1085	205	1005	211
	'38	213	211	128	4266	302	560	75	115	565	240	163	1561	774	500	388	474	228	185	534	1077	940	710	115	655	151
	'37	254	346	148	6682	657	987	145	129	866	327	274	2682	1393	806	602	753	277	273	941	1971	1559	1304	155	889	275
	'36	127	145	72	3998	337	405	60	59	378	147	113	980	549	349	276	305	91	95	366	668	491	557	55	453	146
	'35	39	67	28	1679	124	192	27	11	157	61	50	367	235	183	138	189	26	47	179	320	219	276	30	194	61
	Before '35	94	128	58	3452	280	421	58	33	298	139	103	643	391	371	278	281	91	142	311	482	403	613	83	442	106
	Unid.*	10	7	19	53	7	83	5	396	115	144	3	121	11	14	11	30	13	4	62	11	414	3	19	54	1
	Total	9148	5820	4888	124265	12772	17356	2140	6068	23986	11723	4663	66963	27652	18603	14066	12943	10078	4591	15210	31085	45323	25045	6283	20202	4739
CROSLEY	'51	12	22	25	149	7	73	18	8	298	63	3	213	118	33	42	37	32	37	45	137	101	25	32	24	3
	'50	71	38	43	405	143	127	24	9	660	97	12	342	173	56	85	69	152	44	86	210	163	33	68	88	8
	'49	62	47	44	687	70	124	8	17	465	192	14	505	288	133	194	109	189	45	117	286	309	104	81	177	21
	'48	122	150	113	2147	131	271	19	66	941	370	39	1832	971	416	501	434	347	95	310	860	837	387	201	711	34
	'47	196	94	65	1452	121	270	15	60	925	239	61	457	614	147	167	327	135	79	226	359	577	243	103	299	24
	'46	65	6	16	49	16	11	2	1	103	46	6	94	21	7	20	34	37	18	21	80	53	3	37	36	3
	'45-'42	10	1		28	1	14	1	3	47	12	1	21	7	2	3	6	6	4	6	33	13	7	3	4	
	'41	8	1	2	47	1	27	2	3	54	9		19	17	4	6	13	4	6	7	39	15	3	2	7	
	'40	5		1	4		5		1	17	2	1	5	8	2	1	8	4	2		6	5	1	3	8	
	'39		1	2	10		8			16	1	1	21	12	11	6	4	2	4		10	8	12	1	4	
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	1	1	1	29	4	6	1	28	51	12		9	22	4	1	15	6	1	27	6	9	1	2	10	1
	Total	552	361	312	5007	561	938	90	186	3577	1043	138	3478	2251	815	1026	1058	914	335	947	2031	2090	821	533	1368	94
DE SOTO	'51	338	107	244	4260	621	719	126	251	487	477	145	3842	1324	733	386	407	452	212	504	1496	2828	982	227	388	138
	'50	1012	423	915	11012	689	1777	240	624	2287	1505	501	8593	3559	2164	1414	1170	1576	551	1500	3707	6725	2936	820	2650	490
	'49	831	465	610	10848	811	1583	183	517	2074	1081	515	7786	2954	1624	1196	957	927	448	1349	3632	5592	1900	499	2258	418
	'48	637	434	332	8834	610	1137	129	399	1619	1066	381	5911	1924	1158	875	694	825	398	956	2778	4044	1258	398	1495	287
	'47	428	441	248	8772	581	1072	116	329	1626	766	293	4914	1804	1030	741	605	861	370	899	2352	3216	1187	264	1310	257
	'46	457	289	227	6801	473	973	96	251	1286	625	237	3605	1427	796	551	536	423	246	685	1926	2460	987	197	998	198
	'45-'42	204	177	110	3251	213	323	50	100	486	276	99	1094	595	267	267	229	269	82	221	595	731	520	116	407	80
	'41	690	509	277	13964	834	1662	149	411	1950	893	396	5064	2606	1017	942	821	669	348	1080	2890	3344	1550	270	1744	240
	'40	476	273	207	7784	515	1168	113	241	1071	491	236	3554	1779	647	552	600	422	273	808	1817	2094	1087	218	1229	172
	'39	347	263	161	5923	419	927	86	157	730	329	173	2522	1192	540	434	487	269	205	606	1565	1327	895	155	1053	110
	'38	176	163	79	3818	256	647	66	46	401	208	104	1331	646	298	325	260	176	139	362	864	667	660	75	596	61
	'37	202	286	114	6382	500	1063	110	89	807	258	200	2454	1332	535	485	532	161	267	660	1514	1402	1134	89	988	110
	'36	67	131	39	3679	190	394	35	19	223	100	77	793	478	229	196	198	56	49	210	409	363	417	33	347	71
	'35	21	58	22	1684	70	148	16	10	81	39	35	275	204	110	86	74	31	28	94	142	150	179	12	133	23
	Before '35	38	86	26	2474	102	280	25	6	147	55	47	396	352	133	117	151	68	68	119	222	249	203	23	299	42
	Unid.*	11	1	12	50	6	74	4	257	85	35	3	109	6	15	4	22	6	2	38	11	288	5	12	29	
	Total	5935	4066	3823	99556	6880	13927	1526	3707	15142	8259	3442	52243	22182	11296	8571	7732	7191	3688	10087	25920	35480	15779	3408	15924	2667

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

STATES AND MODEL YEAR

Model	Yr.	Neb.	Nev.	N.H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
BUICK	'51	1930	240	732	5577	1103	18177	3188	587	9582	2243	1402	12548	587	1723	993	2075	9562	927	302	2798	2792	1034	4917	389	177132
	'50	6360	904	1606	23195	3376	57043	12735	2276	38353	8305	6803	42294	2739	5751	2683	10062	39708	3551	1238	8824	8940	3122	13259	1742	619503
	'49	2699	475	1031	13013	1333	33103	6485	1019	20625	4325	3191	21104	1962	2322	1215	3815	14388	1612	670	5633	4402	2627	7256	964	307997
	'48	1518	344	662	8064	769	21155	2921	570	13798	2547	2483	13229	1039	1419	717	2437	8804	981	458	3596	3313	1640	4576	638	200691
	'47	1660	381	687	10667	905	25944	3924	678	17065	2776	2962	15640	1350	1486	811	2924	10853	1213	467	3743	3927	2074	5194	540	237150
	'46	870	200	462	6197	531	14656	2159	358	9513	1549	1777	8396	863	846	450	1661	6172	736	316	2175	2296	1315	2922	299	133624
	'45-'42	567	143	211	2950	398	6749	1366	224	5066	961	1114	4115	605	576	259	1222	4860	512	134	770	1478	798	1841	215	76499
	'41	2184	563	997	13581	1211	31113	5545	678	21676	3862	4960	19217	2030	2731	963	4644	14826	1875	749	4645	6383	3172	7043	741	321593
	'40	1623	400	985	11582	815	27552	3504	535	16221	2722	2934	16866	1922	1682	744	2569	8158	1162	732	3613	3743	2484	5465	552	240191
	'39	1173	219	822	7791	456	19003	2315	337	9662	2113	2026	10157	1365	1014	536	1952	4542	686	502	2306	2588	1571	3967	339	153466
	'38	799	150	448	6379	264	14656	1482	247	5854	1343	1431	8312	806	599	374	1016	2895	462	389	1522	1695	1141	2706	194	108867
	'37	915	217	553	7473	379	16645	1331	212	7917	1492	2020	10092	997	611	421	1043	2685	563	423	1522	2294	1215	3478	256	129017
	'36	616	108	413	3784	153	9877	861	123	3282	779	1060	5613	584	307	265	498	1233	296	324	716	1059	579	1764	150	69176
	'35	145	19	94	821	37	1966	170	60	690	240	190	1006	151	93	89	96	288	32	61	281	174	103	390	29	15521
	Before '35	585	66	260	2359	80	5490	307	161	1547	390	686	2719	380	197	220	194	584	150	243	284	699	287	1076	73	38678
	Unid.*	23	7	24	72	21	144	11	9	149	41	71	764	23	24	11	139	457	12	1	15	8		50	3	6103
	Total	23656	4457	9795	123805	11951	302173	47154	8074	161030	35689	35090	192081	17003	21361	10971	36347	129817	14821	7008	42447	45792	23132	65613	6904	2838212
CADILLAC	'51	448	139	116	1733	238	6184	782	104	2725	607	281	2953	233	437	191	469	2781	219	62	641	651	220	907	92	49353
	'50	611	344	280	3673	457	10304	1380	194	5079	1153	992	5594	565	702	267	969	6140	433	136	1174	1242	299	1396	215	95037
	'49	803	272	158	3848	366	9738	1226	180	4771	996	837	4849	532	576	206	843	4770	414	162	911	1237	542	1374	206	85047
	'48	235	132	106	2407	150	6070	635	68	2914	559	473	2868	324	276	77	478	2278	206	79	551	671	318	844	83	48379
	'47	216	182	118	2863	158	7201	657	58	3217	551	425	3163	385	306	66	588	2327	213	81	623	609	327	833	91	52884
	'46	87	78	64	1358	97	3299	309	23	1506	282	237	1543	147	173	32	289	1070	112	37	289	420	237	336	31	24930
	'45-'42	56	51	37	735	50	1620	218	9	741	112	145	752	123	95	18	155	665	54	18	95	207	119	207	10	13506
	'41	196	219	118	2961	196	6540	717	34	3042	563	537	3034	431	344	62	609	2580	219	99	700	817	334	848	61	56542
	'40	31	27	45	550	42	1443	106	6	644	162	65	686	104	55	16	104	539	51	20	186	135	62	237	12	11944
	'39	24	34	43	605	27	1302	91	4	560	119	97	830	100	60	7	88	326	39	20	120	120	63	184	12	9872
	'38	17	13	22	396	16	793	54	4	304	92	60	361	56	26	4	41	167	35	9	65	70	33	87	9	6177
	'37	18	20	32	517	29	1023	63	4	432	66	69	539	73	39	7	56	145	31	25	76	123	58	101	13	7311
	'36	13	17	12	257	15	496	40	2	212	60	59	247	46	19	8	20	82	11	11	20	77	23	70	3	4053
	'35	3	1		41	1	76	2	1	33	9	12	47	9	4		4	11	7	2	4	10	3	9	2	834
	Before '35	18	12	11	251	9	347	21	4	108	45	62	195	34	6	6	12	40	21	10	26	114	14	37	7	3179
	Unid.*	6	2	6	22	4	47	1	1	27	2	9	80	2	6	2	19	99	2	4	4	3		11		1034
	Total	2484	1543	1168	22314	1855	56483	6284	696	26284	5380	4380	27640	3154	3126	971	4844	24020	2067	771	5455	6506	2662	7461	847	470182
CHEVROLET	'51	6870	706	2292	18469	3408	51038	13482	2743	39169	9479	5209	40964	2814	8086	3782	9189	36969	2780	1200	10555	10587	4697	13796	1229	629936
	'50	14502	1574	4418	38424	6116	95773	28764	6221	84260	22617	15198	83343	6073	14986	6495	22764	87715	5982	2623	27384	22553	8467	26286	3512	1303368
	'49	11048	1164	3026	30706	4633	73466	22481	5416	64890	16876	12348	62834	4750	12264	5056	17726	63605	4738	1978	20187	18397	10188	22744	2842	1002762
	'48	9024	649	2039	20880	3436	49035	15688	3953	43545	12901	7921	42787	3121	8706	4217	13218	42252	3210	1403	14033	11832	7615	16359	1996	683068
	'47	9281	611	1925	19032	3684	43470	15735	3942	39942	12349	8062	37227	3099	8746	4686	12372	41846	3248	1313	12562	10993	7434	15265	1847	640572
	'46	5167	391	1154	11995	2205	26722	10439	2369	22856	6958	4967	22440	1813	5652	2723	7583	24627	1962	843	7761	7003	4713	8820	1080	384194
	'45-'42	3316	319	873	5843	1585	12612	6335	1355	13296	3862	2275	10667	1379	3603	1582	5340	17547	1294	420	2877	4580	2876	5122	622	224104
	'41	13388	1100	2880	26564	5224	54837	26344	5357	54048	17052	12822	50217	4892	15857	6054	22446	60851	5244	1866	18833	17741	11025	23807	2345	937138
	'40	9227	839	2449	21748	3354	45001	18499	3909	40183	13261	9279	40244	4044	11643	4323	15010	39675	4041	1696	13709	11543	8735	18707	1800	701209
	'39	7821	589	2007	14881	2574	31397	14762	2686	28257	10001	6873	27430	3095	8588	3526	11022	27243	2778	1197	9885	8100	6394	13839	1376	499673
	'38	6111	446	1413	11332	1777	23616	9098	2260	15996	8023	5249	18873	2022	4673	2756	6249	19844	2031	985	6459	5717	4249	12037	948	358351
	'37	6076	639	2217	16429	2227	35838	13532	2671	30426	9398	8921	33067	3638	7068	3434	9599	22776	3378	1416	9918	10350	7907	18863	1347	539725
	'36	7065	554	1890	11662	1783	27981	8798	2017	22602	6245	6106	22121	2616	5359	2825	7141	18976	2451	1111	7766	8339	6453	16824	1160	430679
	'35	3139	241	908	4569	653	10726	4690	1137	8089	3680	2856	9018	1215	2617	1186	3051	7679	524	451	3865	2942	2226	6344	494	173250
	Before '35	7464	539	1812	8954	1159	22356	6316	2520	13631	5092	6985	16056	1909	4537	2549	4776	16726	1495	1025	5261	8194	3781	12184	888	322960
	Unid.*	126		6	88		292	37	23	347	261	279	1166	42	181	61	163	1673	26	2	82	18	22	204	13	21622
	Total	121724	10348	31055	261644	43906	603958	214900	49451	518528	160176	117431	519508	48128	122748	55251	168038	529024	45172	19529	169537	155889	98782	231003	23505	8852571
CHRYSLER	'51	796	121	231	2263	345	7061	818	271	3451	552	544	5168	285	379	357	460	2477	310	97	1083	1183	467	1676	148	64192
	'50	1834	367	443	6546	756	14640	2196	826	10320	1714	1991	12613	898	937	715	1953	7866	737	323	2491	3049	544	3139	432	156617
	'49	1486	229	312	5527	681	12893	1798	727	9078	1551	1525	10737	712	776	732	1627	6649	689	269	2123	2232	1399	3096	423	133315
	'48	1177	226	296	4325	511	9725	1208	523	6427	1338	1126	7624	505	630	518	1294	4817	524	218	1665	1724	1040	2310	370	100853
	'47	1108	231	240	3745	460	8957	1150	416	6062	1187	1162	6914	475	518	455	1060	4431	525	190	1498	1594	993	2070	268	92158
	'46	608	162	169	2952	303	6620	807	222	4799	734	876	5264	391	391	257	730	3046	337	136	1045	1154	795	1321	174	86502
	'45-'42	250	80	65	1218	154	2810	438	71	2089	398	439	2010	166	160	85	304	1275	199	39	256	548	297	526	74	28751
	'41	883	314	281	6059	514	13615	2040	251	9449	1408	2371	11054	780	836	417	1511	4726	674	260	1992	2858	1348	2844	321	136617
	'40	589	133	216	3516	285	7991	1100	145	5451	855	1211	7046	499	458	248	847	2409	364	157	1177	1347	870	1534	176	76986
	'39	368	88	148	2645	186	5941	765	88	3438	551	1102	4967	387	284	181	502	1464	269	118	681	872	538	1091	112	52439
	'38	272	49	105	1727	92	4189	399	69	1737	360	571	2933	184	151	123	339	886	152	81	424	594	336	703	75	31581
	'37	337	112	177	2541	144	6178	610	110	3932	451	962	5504	523	217	193	422	943	278	140	532	1101	734	1258	108	52199
	'36	182	46	74	1012	56	2489	285	56	1335	235	483	2099	181	80	68	178	393	116	80	270	396	290	597	42	22268
	'35	92	21	37	454	23	1161	137	32	550	113	248	912	84	39	29	87	172	53	58	86	235	116	287	27	10034
	Before '35	268	40	79	860	60	2235	214	116	996	156	504	1802	175	90	98	145	342	69	110	191	332	262	474	47	19567
	Unid.*	7	1	3	30	12	70	4	4	48	15	19	267	7	10	7	40	149	3		9	10	1	19	2	2347
	Total	10260	2220	2878	45420	4564	106775	13949	3927	69132	11618	15134	86954	6282	5991	4496	11479	41734	5268	2277	15495	18426	9869	22747	2797	1048424
CROSLEY	'51	30	5	14	120	42	232	65	2	251	11	32	193	17	35	1	117	142	9	23	44	87	36	36	1	3189
	'50	25	4	19	176	89	462	260	24	493	30	54	319	28	73	9	258	366	33	42	118	160	115	60	9	6372
	'49	47	3	34	379	80	703	89	15	521	71	112	368	44	77	19	239	331	62	27	184	126	148	122	12	8102
	'48	132	17	83	832	142	1935	249	33	1903	238	350	1285	119	173	73	686	1268	130	74	471	216	343	421	38	23439
	'47	103	13	42	844	50	1178	302	30	1154	105	290	956	45	164	22	434	847	29	37	478	124	310	148	33	14301
	'46	36		5	34	8	83	53	4	30	40	7	101	14	38	9	76	40	3	6	80	8	35	14	4	1473
	'45-'42	7		2	34	2	73	7	1	22	5	14	43	9	14	2	14	21			28	1	9	5	1	557
	'41	9		2	26	1	78	8	2	50	6	8	27	13	4	1	8	16		1	23	8	10	3		599
	'40	2			8		18			35		5	1	2	1		10	12			4	5	1		1	194
	'39	3			12	1	23	6	1	17	6		2	2	2	2	1	16			2		4	6		242
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	1		4	5		22	2		5	2	4	12	5	2	3	14	19	1				2	2		356
	Total	395	42	215	2470	415	4607	1001	112	4381	514	783	2909	298	583	141	1869	2978	287	210	1433	735	1013	817	99	58823
DE SOTO	'51	311	48	114	1395	160	6167	642	164	2179	505	376	3521	169	334	232	398	1294	230	53	882	909	207	1025	57	42798
	'50	884	211	260	4523	338	14273	2045	626	7983	1907	1451	10260	757	1014	526	1796	5205	593	216	1657	2162	352	2277	270	120225
	'49	629	177	220	4035	265	12146	1570	439	7011	1032	1485	8796	572	702	365	1191	3593	626	194	1590	1979	794	2526	287	103294
	'48	511	144	268	2890	254	9877	993	334	5228	868	1013	6125	382	491	326	925	2738	437	154	1311	1493	804	1913	195	77953
	'47	456	135	199	2838	233	9228	852	179	5002	703	1046	5600	340	407	229	687	2374	398	132	1089	1385	570	1739	164	70446
	'46	377	92	183	2109	171	6465	797	157	4003	570	824	4314	241	319	188	552	2046	376	122	885	1147	521	1231	124	54563
	'45-'42	130	43	50	700	110	1597	300	59	1450	258	318	1332	100	174	60	265	911	165	40	205	659	163	392	50	20114
	'41	447	198	231	3397	255	7382	1033	190	6502	770	1801	6719	424	473	190	873	2376	592	186	1203	2160	801	2016	179	84498
	'40	281	80	217	2508	145	5765	637	117	4528	534	988	5153	337	277	119	614	1476	337	123	900	1208	585	1478	124	58334
	'39	246	75	156	2049	92	4721	459	77	3387	336	731	3650	242	231	100	431	1001	320	95	615	937	405	1055	104	42307
	'38	149	39	102	1254	68	2978	237	48	1798	267	355	2137	122	106	61	263	605	157	69	389	555	282	803	51	25065
	'37	288	94	136	2151	101	4856	351	99	3705	370	749	4005	370	160	113	352	681	320	114	473	1043	562	1221	63	43820
	'36	79	38	59	635	41	1623	106	23	1182	152	404	1290	129	53	41	116	246	150	47	192	519	224	502	38	16681
	'35	64	16	27	278	9	665	51	24	428	52	193	509	55	24	41	38	117	76	21	68	207	92	172	16	6968
	Before '35	80	40	48	339	18	1025	62	28	638	71	383	760	91	39	27	59	181	66	30	115	357	121	298	30	10595
	Unid.*	6		1	32	7	34	7	2	54	5	22	206	3	6		31	126	1		2	6		22		1680
	Total	4940	1430	2273	31133	2397	88778	10144	2578	64949	9000	11917	84379	4334	4809	2621	8493	24960	4848	1596	11436	16726	6253	19470	1730	777441

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

● TOTAL REGISTRATIONS ●

CARS IN USE BY MAKES, STATES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
DODGE	'51	1170	316	788	8424	1021	2307	520	849	1829	1949	416	10679	3306	2489	1434	1513	1179	604	1788	3296	8753	2951	789	907	480
	'50	3739	1272	2410	18998	3341	4746	776	2103	7076	5296	1130	22617	9451	6954	4802	3549	4123	1518	4263	8999	17000	7369	2265	6819	1330
	'49	3104	1144	1929	19449	2299	4162	516	1717	6227	4140	1319	20464	7724	6294	3851	3416	3842	1332	3839	8742	14355	5580	1913	6294	1248
	'48	1963	762	1271	16161	1758	3147	382	1471	4266	2992	782	14861	5330	3656	2501	2193	2948	1121	2969	6907	10765	3750	1354	4484	839
	'47	1861	677	1021	17274	1982	3482	414	1571	4749	2811	850	15275	5804	3721	2650	2444	2418	1146	3102	6992	10971	3874	1952	4214	874
	'46	1392	653	767	12348	1315	2398	282	957	3183	1998	621	10016	3914	2363	1739	1738	1541	767	2134	4567	7028	2718	791	2943	576
	'45-'42	879	399	535	5854	694	927	97	288	1501	958	301	3217	1613	956	645	859	1154	322	732	1838	2751	980	415	1193	266
	'41	2493	1204	1065	21967	2259	3508	387	1147	5079	2664	868	11638	5575	3452	2654	2945	2539	1092	2833	7233	10354	3320	950	4006	705
	'40	2141	897	1033	18881	1639	2730	351	785	3623	2273	662	10308	4717	2960	2134	2403	1942	982	2401	5969	8489	3080	891	4084	594
	'39	1707	736	831	16077	1633	2579	276	596	2908	1893	572	8393	3610	2750	1799	2133	1629	784	1964	5686	6233	2871	643	3833	457
	'38	723	412	373	8048	748	1490	169	257	1446	807	296	3852	1829	1402	1080	1203	858	327	1168	2854	2186	1722	349	1571	261
	'37	1249	906	783	19447	1950	3960	427	424	2602	1531	722	9383	4714	2866	2367	3005	1234	1054	2965	6848	6634	3918	498	3793	512
	'36	811	794	546	17865	1520	2378	302	315	1823	1062	573	5997	3443	2153	1631	1950	902	690	1866	4374	4389	2623	348	2739	497
	'35	256	302	215	9843	640	901	117	97	615	386	283	1963	1597	1088	769	855	336	262	631	1369	1200	1194	151	1208	244
	Before '35	288	285	283	8631	764	1061	134	64	854	562	258	1939	1271	1300	857	919	413	419	696	1320	1324	1354	182	1679	249
	Unid.*	26	12	47	128	18	191	18	890	190	391	4	328	20	30	36	74	21	2	115	22	1372	11	83	677	5
	Total	23804	11061	13967	218091	23579	39965	5186	13431	47777	31623	9677	150880	62923	44365	30926	30899	27079	12522	33348	77016	114004	47295	12830	49888	9015
FORD	'51	8034	1982	3865	36037	5335	6804	1596	2834	8727	11474	1774	34996	15587	11316	7775	7553	7736	2416	6672	11531	51138	13158	4750	6297	2302
	'50	17765	5381	9952	85698	10212	12659	3237	5666	24230	23183	4372	72750	31929	26870	19835	16566	19782	4464	14174	27528	87361	26916	11359	29502	4765
	'49	15106	5196	8906	78963	10095	11261	1728	4720	22459	21430	4575	67063	29765	26970	17812	15031	18403	3971	11825	24406	75107	24410	10350	27360	4596
	'48	4003	1039	2379	17843	2440	2217	341	916	5316	6245	1018	13283	6054	5845	4038	3517	5186	1029	2348	5767	13778	5229	2937	5673	968
	'47	6054	1624	3658	37649	4128	3543	617	1388	8619	9740	1909	20943	10668	8572	6747	5900	7205	1671	4246	9570	24122	8206	4337	9309	1580
	'46	7081	2173	5023	26956	4825	4061	733	1258	9020	12878	1720	21445	9798	9904	7644	6452	9210	1997	4319	10547	22832	10613	6325	9674	1622
	'45-'42	3078	867	2056	10649	1721	1302	161	327	3954	4712	678	6381	3438	3406	2665	2650	3339	567	1214	3143	7262	3564	2544	3256	629
	'41	13277	3192	7889	52258	8955	8276	903	1182	14134	19823	2622	25043	14936	15274	12034	10400	13050	2685	5381	14091	33268	16678	9524	14870	2556
	'40	9743	2260	5691	39331	5826	4866	723	726	10202	18485	2054	19106	11629	12752	8761	7878	8929	2405	4017	11556	22745	12893	6608	11422	1938
	'39	6340	1644	3929	29653	4281	3540	543	575	6836	10907	1576	14408	8293	10751	6596	6252	6436	1779	2958	8828	16251	10361	4523	8799	1393
	'38	2653	1198	1938	21639	2800	2537	372	349	4089	4446	995	8548	5418	7322	4496	3579	3402	1282	1896	6351	7523	8785	2052	6735	915
	'37	4981	2216	3240	35587	4868	5294	829	831	7148	7396	1876	16136	11857	10633	7944	7328	4852	2106	4475	11763	20998	15749	3350	10585	1638
	'36	5732	2220	4116	40396	4872	4662	743	438	6678	9395	1808	12222	8326	8703	6832	6924	4058	2149	3840	10562	15227	11730	3518	9353	1721
	'35	2868	1348	2324	30138	2632	2805	457	286	3438	4445	1022	7188	6071	6605	4830	4141	1954	1292	2196	5812	7685	9464	1924	6696	1152
	Before '35	10904	4765	9243	109471	9302	8688	1265	404	11987	17745	3782	25619	17764	25764	20910	15449	9083	4313	6215	9063	25559	32161	7331	23584	3377
	Unid.*	116	51	378	381	45	310	32	1594	711	2413	41	732	83	91	99	315	127	9	227	55	8783	67	333	300	10
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FRAZER	'51	82	34	37	450	70	120	1	16	133	76	38	968	293	241	200	71	112	37	182	165	560	414	43	192	28
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	'49	257	92	206	1098	182	116	55	54	445	273	208	2143	775	889	477	276	388	117	237	298	1492	780	174	484	163
	'48	470	228	322	3126	578	356	103	134	920	454	404	4620	1721	2245	1146	537	688	112	432	617	3237	1357	322	1175	324
	'47	637	330	318	5617	637	626	150	199	1312	611	456	4486	1855	1307	1178	743	872	282	614	1202	3807	1184	322	1050	338
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	'45-'42																									
	'41																									
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	'39																									
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	13	2	11	446	5	12		47	37	37	12	89	79	21	18	24	13	4	16	16	107	14	18	62	2
	Total	1477	690	917	10904	1489	1240	342	454	2911	1473	1135	12558	4799	4748	3088	1687	1850	567	1468	2315	9308	3809	890	2976	869
GRAHAM	'51																									
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	'45-'42																									
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	'39	5	16	2	379	26	64	3	1	56	9	4	82	52	24	22	8	9	23	15	98	55	32	5	47	6
	'38	3	8	2	162	7	11		2	46	9	6	61	26	25	9	10	4	16	9	54	35	9		15	
	'37	9	26	14	667	43	141	5	9	99	23	24	177	94	55	34	29	12	11	46	212	151	119	3	83	11
	'36	6	27	5	585	35	55	1		61	6	11	78	39	51	11	23	9	29	16	85	77	93	2	38	12
	'35	1	18	2	270	22	59		3	27	10	9	56	28	23	17	19	7	21	13	37	43	33		28	11
	Before '35	5	23	5	707	49	61	4	7	41	12	9	98	57	62	37	21	9	27	27	84	97	135	1	99	9
	Unid.*	4	1	1	7	5	12	1	1	6	2	1	4	6	1	1	1	4		10	2	57		2	4	
	Total	38	130	35	3371	205	424	15	25	374	88	73	637	314	279	140	125	53	177	147	629	565	493	18	315	56
HUDSON	'51	473	303	358	4993	1328	1036	148	289	984	797	476	8656	2468	1135	1108	899	418	311	954	1405	5209	1774	244	477	547
	'50	883	581	492	11981	1949	1309	224	687	2367	1304	634	12951	4064	2040	1710	1051	1009	503	1448	2992	7939	3351	382	1629	718
	'49	1375	832	1070	11850	2119	1733	223	913	3284	2048	930	13480	5316	3272	2757	1829	2190	829	1754	3164	9032	3997	937	3519	1081
	'48	1074	459	587	9657	941	1505	167	513	2300	1377	498	6902	3043	1852	1578	1067	1062	557	1382	2915	7435	2080	610	2039	425
	'47	871	365	449	7546	655	1103	123	304	1707	1029	386	5299	2328	1357	1087	902	743	437	985	2271	5594	1327	412	1585	331
	'46	931	416	340	7464	652	1113	116	322	1788	955	387	5111	2450	1481	1087	897	661	477	934	2333	5474	1386	370	1407	334
	'45-'42	484	239	140	3387	404	372	42	85	792	469	205	1889	1002	697	589	405	288	255	308	878	2068	563	201	612	154
	'41	839	520	291	9160	675	1197	122	237	1708	773	486	4512	2519	1453	1033	794	527	541	888	2382	5467	1190	244	1263	275
	'40	636	353	248	6462	671	967	117	176	1388	577	326	4042	2340	1403	813	695	530	408	822	1948	3858	1126	198	1139	269
	'39	283	138	108	3286	418	470	66	100	776	332	173	1681	880	672	532	330	271	287	383	1191	1674	643	88	555	109
	'38	170	101	46	2036	329	311	42	44	530	195	141	840	542	448	406	230	203	176	260	796	832	535	62	324	83
	'37	394	246	104	3512	749	746	97	74	911	414	303	1684	1252	748	926	481	252	387	585	1514	2546	1029	123	729	188
	'36	185	151	79	2412	426	370	50	56	553	186	167	901	855	541	476	277	124	215	279	989	1180	699	73	421	212
	'35	54	62	22	1280	161	179	18	19	142	59	67	307	393	269	255	109	47	97	101	341	336	290	21	161	109
	Before '35	76	84	36	1509	229	306	31	30	225	76	59	417	324	335	295	141	45	263	167	554	539	423	23	241	56
	Unid.*	22	28	20	35	9	54	4	310	101	124	8	137	13	12	15	21	11	3	38	13	600	5	13	33	
	Total	8730	4898	4390	86591	12715	12771	1582	4159	19535	10715	5229	68776	29769	17715	14737	9779	8411	5748	11249	25566	58472	20299	4009	16147	4807
HUPMOBILE	'51																									
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	'40				19		2		1		1		3	2	2	1			1		1		1			
	'39	1	1		58	4	8		1	6			58	4	6	1		3		2	16	37	38	1	3	2
	'38	2	7		65	6	19	1	3	4	5		44	7	8	5	3	6	2	2	43	27	29		4	
	'37		2		18		1	1				1	6	5	2	1	1				1	2	1	1	1	1
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	'35		8	2	185	13	36	1	1	8	7	3	44	15	25	11	13	1	4	11	51	8	42		16	7
	Before '35	12	15	3	626	34	120	4	12	52	20	4	127	51	96	40	40	18	28	42	117	92	169	8	83	19
	Unid.*				1		2		2	6	1		10	6	5		7	1		5	9	21	2		1	3
	Total	18	35	5	1061	70	221	7	22	93	37	12	310	97	168	63	77	32	37	67	253	209	287	11	109	6

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

AND MODEL YEAR—*continued*

Model	Yr.	Neb.	Nov.	N. H.	N. J	N. M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
DODGE	'51	1047	102	548	4822	534	14630	1945	347	6567	1218	690	9938	552	1172	742	1142	4881	334	207	2004	1877	981	3239	204	119100
	'50	2847	329	1102	12967	1204	33106	5704	1133	21036	3921	2987	24015	1849	2939	1415	5240	18181	1227	592	5296	5175	1259	6006	732	310826
	'49	2835	298	897	10745	1119	30578	5070	1120	18573	3264	3275	20587	1649	2540	1346	4259	16454	1227	640	4641	5238	2689	6686	772	281202
	'48	1529	278	779	6717	721	22658	2979	725	12959	2303	2161	15053	1099	1528	994	2753	9294	931	475	3465	3491	1895	4333	456	200231
	'47	1633	284	695	6299	757	24206	3389	560	14401	2316	2325	16168	1115	1473	1018	2714	10396	981	457	3538	3470	2057	4611	416	209733
	'46	1098	173	440	5508	562	15322	2350	461	9766	1557	1672	10977	805	1047	644	1874	6756	728	330	2419	2651	1473	3268	291	141746
	'45-'42	514	96	179	2167	257	4940	1139	241	4051	789	1149	3557	333	573	257	1114	3617	380	109	739	1541	674	1050	149	59112
	'41	1391	335	569	8397	755	19810	3340	582	15002	2431	3321	14535	1223	1524	806	3229	9897	1022	406	3913	4745	2126	4415	435	205822
	'40	1331	236	514	7113	575	16090	2790	427	12063	2090	2257	12127	1023	1300	676	2579	7943	961	386	3031	3340	1951	3930	384	168848
	'39	1113	199	535	6388	449	15938	2333	351	9761	1834	1951	9648	1109	1146	599	2313	6348	816	354	2342	2741	1441	3541	316	145989
	'38	595	92	300	4005	273	9435	1068	195	4709	1031	917	5540	534	505	309	1136	2777	269	248	1334	1349	677	2027	154	76187
	'37	1250	264	650	8537	508	19641	1949	384	11885	1860	2867	14648	1390	1022	550	2346	4756	867	466	2118	3297	2224	5328	316	172904
	'36	1068	176	440	5508	327	13131	1195	257	8330	1377	2500	9418	935	639	430	1509	2876	627	311	1622	2546	1753	3715	281	122774
	'35	539	94	197	1768	133	4962	473	159	2870	745	1097	3208	355	289	196	675	1155	339	130	772	1204	640	1664	120	49997
	Before '35	758	108	225	1829	139	5403	521	188	3007	713	1208	3646	339	281	239	546	1454	249	181	857	1395	820	1522	138	52446
	Unid.*	32	3	9	57	12	92	3	8	102	45	56	904	13	33	11	107	289	4		13	15	3	60	3	5979
	Total	19400	3059	8106	98544	8325	249644	36248	7128	154890	27496	30433	173970	14323	18011	10234	33336	107074	10962	5292	37904	44075	23063	55395	5149	2322864
FORD	'51	9435	804	1502	15197	2507	39264	11246	2439	29657	7257	3728	33739	2206	5957	2877	7446	307 1	2445	773	9077	8367	3457	10009	922	509331
	'50	13531	1285	3481	32551	4954	77690	28753	5493	69216	18983	12258	71598	5506	14261	5348	20072	79804	5137	1923	24022	19373	7299	22632	2491	1142907
	'49	13266	1235	2689	25995	4761	68425	26316	5716	61238	13999	11626	57342	4461	15004	5570	19743	69500	5071	1824	19496	18966	9309	22570	2630	1030327
	'48	3955	248	938	5464	1157	13726	7099	1381	12286	7984	2660	10398	924	3716	1639	4782	16826	1151	443	9706	5643	2290	4614	548	241371
	'47	5582	506	1051	9376	2054	24299	13055	2383	22054	6793	4523	19676	1372	6805	2430	6828	28870	1992	733	10607	7970	4179	7380	1050	395773
	'46	6025	428	1193	9156	2193	23493	14991	2745	20505	8420	4294	19836	1767	8268	3055	8850	32409	1918	744	8589	6730	4014	8548	1095	408574
	'45-'42	2277	212	367	2791	1053	6087	4832	1117	6732	3463	1526	5561	555	2516	1022	3751	14182	858	216	1964	2766	1271	2905	477	142173
	'41	9124	747	1746	11517	3117	26596	23250	4588	31505	15727	7010	24785	2524	13915	4642	14513	52291	3389	1119	11968	9408	5857	14051	1689	613179
	'40	7927	518	1551	8506	2153	20401	19255	3134	22732	11930	5382	18148	2240	13293	3483	11133	39067	2472	1000	9731	5196	4607	9980	1209	467298
	'39	6407	382	1272	6210	1575	15729	12078	2146	16728	9496	4135	13191	1924	8775	2918	7496	25672	2008	738	7407	4319	3544	8787	922	341322
	'38	4386	289	756	4717	897	12601	6132	1634	8852	6233	2905	8326	1251	4276	1852	3239	14489	1214	497	4184	2709	2042	6851	808	210821
	'37	6496	482	1450	8899	1337	25149	8726	2276	24802	9485	6207	20619	2266	6933	3216	6099	19130	2103	825	9438	6285	5159	14090	996	391641
	'36	6023	540	1410	7388	1403	22243	8921	1982	19067	8707	6410	16221	1914	8748	2624	6858	19080	2240	867	5193	6855	4673	10683	871	356704
	'35	4437	344	899	4752	770	14429	8231	1823	9886	5822	3738	9507	1036	4431	1893	3529	11066	1150	574	4187	3729	2811	8037	607	223433
	Before '35	18277	1511	2698	12048	3261	30139	20477	6461	30766	17913	13680	25749	2404	20010	7445	13161	38934	2918	2137	11770	13154	10548	21671	2045	742905
	Unid.*	120	7	43	89	58	163	44	36	297	252	208	1687	20	217	56	518	1539	15		74	13	12	189	42	19978
	Total	114260	9348	23048	164856	33270	420614	212407	47354	386323	153444	90190	356383	32270	137127	50070	138018	495579	36081	14413	143484	121483	71082	172977	18200	7237737
FRAZER	'51	89	3	9	382	25	1089	135	39	682	15	167	921	39	29	61	75	306	70	22	13	170	102	268	34	9228
	'50	33	2	35	29	15	116	17	7	139	79	22	126	11	4	38	13	134	19	8	145	36	22	56	10	2333
	'49	296	28	44	419	119	1348	383	201	1406	185	269	1830	57	111	296	243	1070	143	52	279	340	200	742	87	21437
	'48	657	79	75	1251	260	3110	676	249	2754	655	685	2210	118	173	384	476	2114	280	80	805	712	462	1284	154	45309
	'47	640	95	140	1914	307	4812	1057	342	3315	659	964	3088	226	331	506	607	2268	324	121	1039	1064	623	1246	211	55810
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	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	23	4	8	50	6	101	10	5	40	36	25	23	22	7	19	23	97	8		36	13	1	35	3	1701
	Total	1738	211	309	4015	732	10567	2278	834	8336	1628	2132	7898	473	655	1308	1437	5989	944	283	2317	2335	1410	3831	499	135818
GRAHAM	'51																									
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	'46																									
	'45-'42																									
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	'40	7	4	4	20	2	38	1	1	84	2	23	89	5	1		1	11	3	2	6	37	17	27	2	997
	'39	14	3	9	75	3	182	3		174	15	73	129	9	2	3	6	33	5	1	16	41	34	71	4	1944
	'38	8	5	2	35	1	95	3	3	99	3	64	69	4	3	1	5	25	11	2	12	48	17	34	1	1307
	'37	15	18	22	188	10	376	16	4	398	17	195	388	23	3	11	12	37	45	13	21	148	71	127	3	4228
	'36	11	9	6	80		180	5	7	174	22	119	167	15	3	3	11	24	31	6	12	84	34	61	5	2400
	'35	5	3	2	56	2	141	9	5	115	10	125	140	6	3	1	8	23	14	1	8	48	17	42	5	1548
	Before '35	34	14	13	118	1	339	7	15	199	20	135	263	10	4	11	20	38	30	19	23	71	48	106	4	3219
	Unid.*	2			9		14			11	1	4	7	1			3	6	1		2			4		202
	Total	102	60	59	579	21	1386	53	35	1324	93	771	1272	74	19	30	71	208	144	44	100	500	243	484	28	18417
HUDSON	'51	748	102	239	2518	361	6476	800	271	3858	393	701	5111	288	444	447	692	2229	858	115	779	1163	373	1703	164	67079
	'50	721	188	484	4145	443	10174	1463	346	7258	1116	1300	7413	490	731	581	1253	4328	942	201	2214	1449	518	2891	346	114851
	'49	964	197	423	4863	702	11349	2214	647	9236	1418	1698	8835	610	1171	761	2116	6504	1388	347	2602	1844	1144	3850	613	144819
	'48	805	160	324	3779	389	8976	1674	324	6671	1320	1221	6672	560	718	399	1425	4661	560	191	1953	1597	830	2260	216	99582
	'47	525	90	276	2585	289	6192	1207	176	4683	799	889	4759	412	702	230	903	3039	370	156	1319	1395	761	1735	188	72826
	'46	514	99	241	2139	220	5981	1238	199	4779	767	979	4887	412	716	252	840	2698	359	172	1169	1426	669	1731	146	71468
	'45-'42	288	42	93	807	106	1776	618	52	1891	359	474	1500	134	384	85	402	1137	345	55	265	692	269	762	92	29256
	'41	452	114	277	2385	185	4569	1070	95	5066	620	1191	4320	422	720	154	685	1839	455	182	904	1804	760	2108	176	69571
	'40	376	83	285	1969	160	4188	959	93	4626	577	725	4175	384	614	161	583	1562	335	166	788	1177	698	1796	154	58147
	'39	191	29	184	1007	83	2542	516	49	1753	382	419	1879	217	275	87	241	757	185	117	408	613	300	772	70	28504
	'38	160	29	91	693	45	1706	256	58	1057	229	446	1299	119	157	57	180	545	121	70	223	520	209	565	50	18634
	'37	298	58	187	1395	109	3428	445	123	3258	400	831	2946	240	328	101	380	888	269	164	376	1287	530	1180	103	39306
	'36	174	44	125	839	83	1926	219	60	1607	259	694	1387	172	182	70	197	524	178	114	260	637	335	798	68	22749
	'35	88	13	62	224	25	699	110	35	633	121	293	477	69	58	55	64	189	54	49	112	341	132	338	39	9174
	Before '35	165	18	113	420	27	1319	156	38	701	125	312	836	96	67	77	80	194	69	84	127	287	134	485	40	12468
	Unid.*	10		6	17	4	50	2	2	55	7	27	140	3	11	3	36	107	3		7	1	5	15	2	2143
	Total	6475	1257	3410	29365	3181	71249	12967	2538	57152	8902	12200	56736	4626	7248	3480	10087	31201	6301	2183	13484	16433	7660	22936	2465	860579
HUPMOBILE	'51																									
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	'41	2			3		2			12	3	2	4					2			2	3		1		138
	'40	1			1		1	1	1	2			3				1	4	1		1	3				54
	'39	2	1	1	14		69		3	11	2	10	4	3	1		6	3	6	1	1	11	4	4		404
	'38	3		2	18	1	63	1		18	3	18	14	4		2	9	7	2		5	22	1	9		490
	'37	2		1	6		5		1	5			7				1	1				6		1		74
	'36	8		2	19		37		1	26	8	7	33	5	2		6	13	1		3	5	2	5	1	394
	'35	11		2	34	2	98	6	2	42	4	14	78	20	4	1	5	15	2	3	7	23	11	22		916
	Before '35	33	5	18	152	1	431	19	9	216	26	60	308	34	25	28	18	30	10	22	47	94	41	53	9	3506
	Unid.*	2		1	10			1		6		2	17					1				8	2			132
	Total	64	6	27	257	4	704	28	17	339	46	113	462	66	32	29	46	76	22	26	66	174	61	92	9	6096

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

• TOTAL REGISTRATIONS •

CARS IN USE BY MAKES, STATES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
KAISER	'51	1408	491	1073	7806	888	2467	184	477	2980	2903	599	11064	4581	2994	2196	1324	1730	619	2217	2685	11937	4132	916	1740	492
	'50	149	44	192	1242	126	201	327	77	422	221	75	1411	713	555	325	248	250	119	268	487	852	983	141	407	68
	'49	742	224	710	3574	546	641	151	214	1432	805	450	6168	2643	2329	1326	851	1385	421	917	1332	4723	2732	482	1722	419
	'48	901	335	666	4972	703	734	160	294	1640	897	493	8466	3210	3339	1797	1105	1238	280	998	1686	6297	2504	596	2352	464
	'47	768	339	426	5323	587	799	116	211	1434	844	340	4122	1892	1055	972	856	807	345	701	1624	4456	1249	416	1219	406
	'46																									
	'45-'42																									
	'41																									
	'40																									
	'39																									
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	47	5	40	158	20	45	4	77	124	115	18	293	112	71	32	75	64	7	25	52	254	36	35	134	13
	Total	4016	1438	3107	23076	2875	4697	942	1350	8032	4885	1975	31522	13061	10235	6848	4459	5454	1771	5128	7868	28619	11836	2588	7574	1882
LA SALLE	'51																									
	'50																									
	'49																									
	'48																									
	'47																									
	'46																									
	'45-'42																									
	'41																									
	'40	122	109	53	2556	195	512	66	136	602	238	28	1260	355	138	101	190	113	135	279	877	719	280	58	321	39
	'39	109	99	47	2646	169	443	58	109	494	207	34	841	277	160	101	150	101	115	214	752	538	241	55	282	26
	'38	51	56	20	1568	72	262	33	61	260	91	19	498	170	86	57	73	56	62	121	502	273	115	24	144	18
	'37	87	106	42	2906	161	461	64	70	402	128	36	664	295	150	90	161	72	103	221	831	427	199	51	245	33
	'36	14	27	9	1018	59	108	19	14	113	42	6	211	78	41	33	26	15	40	55	237	118	67	11	76	9
	'35	5	20	8	579	18	63	11	8	45	17	4	99	33	25	13	27	10	17	27	100	43	30	8	41	5
	Before '35	9	16	4	638	22	98	12	4	39	13	4	79	28	24	9	16	7	21	29	126	48	32	5	41	9
	Unid.*	11	2	2	61	3	15	2	51	66	35	2	53	44	9	3	9	8	3	17	13	55	4	1	23	
	Total	407	435	185	11972	699	1962	265	453	2023	769	133	3583	1277	627	406	651	382	496	963	3438	2221	988	210	1173	139
LINCOLN	'51	205	68	84	1516	210	221	86	104	482	319	79	1224	419	238	208	118	158	48	181	357	1183	256	99	141	73
	'50	421	103	132	2867	323	353	102	220	1062	606	135	1935	672	419	358	186	336	137	305	842	1723	412	207	529	131
	'49	785	321	393	6550	596	936	117	436	2558	1225	357	4994	1604	972	672	380	995	233	797	1616	3094	1044	519	1239	285
	'48	82	49	38	1269	64	140	15	49	361	132	25	568	142	96	100	67	113	27	90	241	297	89	64	129	26
	'47	157	115	104	2702	169	322	35	108	795	243	79	1333	370	182	171	130	267	79	213	633	776	217	110	320	40
	'46	117	71	73	1493	129	213	24	72	481	179	45	890	266	148	138	138	223	53	162	467	634	198	75	268	34
	'45-'42	47	43	38	851	53	72	10	32	205	85	19	491	92	57	46	45	116	16	54	167	264	96	45	88	12
	'41	136	134	71	2790	229	317	31	85	600	242	63	675	286	205	218	160	257	84	179	618	564	289	107	275	56
	'40	125	132	69	2620	208	282	27	68	577	188	70	626	249	194	201	148	192	74	152	472	523	256	78	279	58
	'39	102	113	50	2394	186	201	21	35	391	169	65	464	183	142	120	150	163	66	110	409	492	211	79	179	61
	'38	45	86	27	1769	85	100	18	24	244	84	41	241	124	103	82	70	74	39	75	240	276	167	26	120	39
	'37	54	109	32	1791	118	136	19	18	249	90	49	248	148	131	106	76	84	68	81	344	326	235	62	117	63
	'36	13	36	9	829	58	44	7	5	111	10	22	81	65	50	38	26	21	11	32	104	88	81	7	56	30
	'35				71	1	13	1	2	4	2		7	3	4	1	2	2	1	1	14	4	5	2	6	
	Before '35	5	6	3	292	19	26	3	4	17	8	1	46	13	7	5	6	8	9	10	37	30	21	1	14	3
	Unid.*	1	1	1	16	6	14	1	70	47	59	3	35	9	3	3	3	1		34	5	62	2	10	12	1
	Total	2295	1388	1121	29990	2454	3390	488	1332	8164	3641	1053	13856	4833	2951	2765	2005	3002	945	2479	6366	10333	3569	1491	3775	912
MERCURY	'51	2192	625	1077	14106	1797	2518	357	768	3743	3412	607	11707	3881	3362	2564	1518	1747	728	1970	3499	12240	3613	1291	1931	691
	'50	4402	1191	1766	24863	3087	3940	788	1473	8183	5934	1107	18947	5957	5708	4315	2274	4183	1031	3193	6605	17535	6464	2096	7270	1113
	'49	3545	1426	1768	24537	3240	3637	380	1380	7405	5526	1276	19739	6861	6378	4677	3942	4328	989	3119	7083	16327	6034	2121	6317	1285
	'48	587	207	331	4671	553	561	60	186	1310	897	196	3082	1327	760	693	638	792	147	461	1272	3119	832	446	1049	189
	'47	808	477	513	10556	1039	1191	105	244	1912	1500	369	5002	1754	1220	1096	782	1062	314	861	2497	5069	1495	617	1581	424
	'46	1076	442	607	7329	1063	1076	94	181	1825	1855	360	4355	1682	1418	1072	921	1337	255	754	2128	4267	1928	720	1692	406
	'45-'42	342	142	231	2065	292	208	20	71	626	613	123	1050	414	360	302	267	469	83	158	377	1148	477	259	450	106
	'41	1513	598	704	10198	1195	1911	98	134	2204	2094	457	3537	1653	1388	1204	1030	1453	312	659	1788	4307	1917	901	1722	402
	'40	971	338	499	9324	1113	956	79	150	1618	1599	370	3311	1497	1302	1017	858	1000	305	550	1809	3920	1730	541	1477	321
	'39	635	274	340	6104	751	761	57	94	1090	1078	222	2185	881	1006	747	576	644	262	401	1192	2750	1250	375	948	201
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	34	30	48	382	29	76	2	200	189	276	8	230	130	61	23	61	42	5	34	22	421	51	61	128	3
	Total	16115	5750	7884	113837	14159	15935	2040	4881	30107	24784	5095	73145	26347	22963	17710	11984	17057	4431	12160	28312	71103	25791	9430	24565	5141
NASH	'51	765	421	593	9436	1183	1480	159	406	1504	1018	587	8767	3642	2248	1855	1254	632	463	1296	2481	6406	2648	441	1831	353
	'50	1585	714	1083	14904	2271	1952	306	672	3089	1677	988	13087	5949	3705	2858	1843	1385	672	1936	4813	7688	4324	824	5429	662
	'49	1142	662	860	9169	1301	1719	215	531	2412	1346	802	8639	4013	2514	2041	1324	1311	576	1515	3779	6362	3124	908	3318	669
	'48	929	506	625	7336	916	1889	186	464	1935	1288	419	7116	2800	1473	1299	961	1079	506	1358	3770	6237	2139	642	2155	455
	'47	881	478	506	7692	838	1712	166	381	1736	1132	431	6236	2230	1357	1184	948	994	440	1231	3286	5355	2029	594	1992	412
	'46	813	456	504	7199	759	1474	149	312	1722	1013	346	5939	1993	1174	1058	931	940	448	1109	2602	4555	1882	583	1767	351
	'45-'42	269	155	118	2518	244	372	39	38	556	312	123	2444	636	438	396	284	239	149	276	791	1324	717	183	534	172
	'41	354	349	296	6953	715	1192	127	138	1257	543	335	5614	1793	1144	936	705	811	374	669	2273	3494	2076	267	1629	356
	'40	294	262	204	4416	585	810	67	95	947	345	244	3951	1238	838	600	563	333	298	643	1582	1936	1483	185	1374	267
	'39	183	193	149	3443	389	599	68	69	603	244	180	2646	745	619	344	377	164	229	442	1454	1122	982	139	1086	221
	'38	91	87	74	1904	229	400	46	38	361	128	78	1264	316	430	233	203	127	129	266	949	531	952	77	614	118
	'37	145	189	98	3456	492	786	98	31	484	178	200	2958	791	711	480	382	229	288	569	1877	1281	1146	114	729	243
	'36	59	121	51	2151	262	367	37	20	215	95	86	913	234	399	229	136	113	123	216	734	354	498	51	289	158
	Before '35	20	50	28	1495	150	275	29	11	91	45	42	418	148	247	132	88	94	137	140	391	189	321	43	272	79
	Unid.*	15	1	19	54	13	75	3	258	70	109	4	147	9	18	15	17	10	2	45	16	401	4	8	50	1
	Total	7587	4855	5216	83478	10412	15212	1750	3447	17028	9495	4841	71372	26450	17374	13702	10060	8195	4855	11926	31180	47312	24427	5077	23185	4560
OLDSMOBILE	'51	1237	485	693	10683	1254	2211	557	924	1565	1771	411	9776	3580	2193	1483	1443	1233	541	1509	4285	10379	2448	777	1199	530
	'50	3846	1645	2179	30111	3582	6092	1197	2536	7923	5930	1552	26953	10192	7023	4742	4267	4676	1699	4741	13222	24413	8857	2353	6879	1737
	'49	2420	1122	1438	22674	2321	4269	731	1830	6162	3629	1172	19744	7337	4919	3476	3192	3325	1368	3494	10386	15143	5509	1577	6091	1263
	'48	1287	632	764	14393	1216	2591	455	987	3342	1859	566	12018	4637	2502	2101	1866	1727	774	2038	6422	10793	2899	810	3621	622
	'47	1312	694	795	15662	1540	3197	484	1066	3522	2015	648	12899	5110	2722	2271	2096	1706	836	2346	7611	10903	2963	768	3674	633
	'46	794	450	481	9215	964	1998	316	555	2292	1295	443	7409	2885	1612	1401	1336	1048	541	1452	4647	5622	1825	500	2268	372
	'45-'42	511	346	266	5764	598	1094	149	223	1253	714	242	3629	1569	797	791	759	682	390	700	2426	2865	1063	332	1294	164
	'41	7822	1252	1092	26841	2360	4750	671	990	5027	2648	923	13990	6374	3258	3207	3071	2239	1398	3129	10774	10661	3947	1056	5155	886
	'40	1245	694	746	18849	1595	3180	503	532	3166	1839	693	9473	4615	2358	2192	2193	1422	1135	2262	7729	6948	2818	756	3811	509
	'39	792	578	467	12109	1080	2163	340	286	1807	1130	400	5281	2456	1653	1408	1406	881	748	1509	5290	3623	1867	448	2317	385
	'38	406	363	251	8044	713	1355	206	123	1137	673	280	3024	1548	1002	841	625	525	491	893	3137	1792	1037	260	1467	242
	'37	667	664	440	15521	1478	2494	418	263	1912	1022	500	6356	3385	1985	1579	1615	673	890	1731	5584	4927	2517	375	2567	427
	'36	377	488	248	12198	997	1799	312	179	1294	585	317	3789	2051	1311	943	1055	444	577	1174	4409	2850	1732	186	1868	276
	'35	144	247	122	6880	432	671	143	65	466	227	136	1419	1063	667	554	470	145	271	472	1661	1126	749	76	818	131
	Before '35	71	134	73	2690	281	498	91	35	302	141	113	862	513	373	325	252	95	213	336	810	787	682	68	593	70
	Unid.*	21	6	39	124	10	165	21	643	195	495	16	251	18	36	24	58	18	2	138	33	712	7	35	65	2
	Total	16952	9788	10094	211668	23421	39485	6596	11217	41385	25973	8442	138552	57332	34311	27318	25928	20839	11971	27924	89428	113544	41017	10376	43685	8329

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

AND MODEL YEAR—*continued*

Model	Yr.	Neb.	Nev.	N.H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
KAISER	'51	1063	112	275	6264	484	13789	3189	503	9170	354	1905	12441	627	1021	656	1124	4490	715	331	1031	2729	1096	3057	160	135791
	'50	143	16	272	459	75	1442	323	104	1486	516	203	1751	83	63	147	206	606	84	70	1781	337	169	539	63	20845
	'49	796	40	181	1810	379	6355	1147	578	4589	496	839	5660	313	363	619	923	2646	450	194	1001	1012	698	2392	215	70813
	'48	1228	88	190	3138	468	6721	1432	434	5593	1124	1154	4965	335	481	705	1111	3519	460	172	1684	1077	807	2684	232	85569
	'47	643	112	213	2028	384	4773	1137	287	3743	733	815	3646	329	483	442	820	2586	285	147	1093	859	569	1288	174	56825
	'46																									
	'45-'42																									
	'41																									
	'40																									
	'39																									
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	37	2	9	59	21	194	44	11	136	51	45	67	28	19	32	60	246	14	2	78	10	4	88	9	3123
	Total	3930	370	1140	13758	1811	33274	7272	1917	24717	3276	4961	28530	1715	2430	2801	4244	14087	2008	916	6648	6024	3343	10028	853	374966
LA SALLE	'51																									
	'50																									
	'49																									
	'48																									
	'47																									
	'46																									
	'45-'42																									
	'41																									
	'40	52	53	53	1202	70	2602	242	13	1128	155	183	1352	145	87	34	179	578	74	55	206	251	147	293	22	18654
	'39	51	40	58	982	54	2293	223	10	962	176	227	985	156	92	24	178	429	65	40	176	213	122	243	21	15983
	'38	46	24	39	575	26	1304	119	6	516	94	101	533	84	51	15	58	249	60	34	95	135	59	121	12	8956
	'37	63	39	47	949	24	2252	155	19	891	121	220	1099	127	51	25	103	328	32	62	121	257	129	298	15	18428
	'36	28	13	19	229	12	556	44	4	208	51	73	280	46	18	3	24	73	11	21	41	72	28	77	4	4356
	'35	18	6	13	115	9	261	15	4	92	23	32	143	19	4	5	12	28	3	7	27	38	21	31	3	2152
	Before '35	10	9	13	160	8	352	7	4	107	16	34	122	29	6	3	9	26	9	19	9	36	15	61	1	2394
	Unid.*	1	1	2	21	4	65	2		23	7	5	26	3	5	2	11	54	4		4	2	1	13		743
	Total	268	185	244	4233	207	9685	807	60	3825	643	875	4520	609	314	111	574	1764	258	238	679	1003	522	1129	78	68669
LINCOLN	'51	161	32	48	543	100	1630	266	43	806	145	169	1026	82	153	92	142	970	83	19	161	271	84	243	32	15338
	'50	260	96	85	977	143	2206	466	73	1472	424	341	1704	109	271	80	270	1720	102	29	556	411	129	431	77	26745
	'49	502	182	132	2594	431	5842	1230	190	3738	907	816	4259	324	538	332	765	4274	364	91	771	947	583	1236	221	64272
	'48	53	21	46	416	36	854	90	19	372	313	81	355	46	37	15	76	418	36	15	385	115	47	94	32	8247
	'47	99	49	54	883	80	2108	233	23	941	234	214	973	124	136	39	185	864	89	33	287	247	96	273	38	17973
	'46	112	28	38	625	51	1434	181	23	722	189	139	820	96	89	21	165	647	69	28	182	193	65	186	17	12711
	'45-'42	39	17	18	189	45	326	72	9	244	72	90	252	42	34	11	69	317	23	7	46	98	40	61	15	5179
	'41	130	46	56	680	74	1508	248	29	720	275	321	855	105	130	44	212	752	93	32	207	269	125	286	51	15849
	'40	143	67	57	560	88	1294	233	32	675	263	251	734	127	95	51	146	636	110	28	207	236	119	253	43	14526
	'39	107	49	31	369	57	960	182	26	551	246	243	559	72	84	42	176	463	92	32	155	221	86	211	43	11607
	'38	78	30	28	265	28	665	115	23	301	133	185	349	58	53	27	97	243	41	18	102	164	70	135	22	7385
	'37	92	43	38	249	39	840	107	43	401	169	236	466	62	66	38	76	273	69	22	105	206	60	192	18	8668
	'36	27	6	13	120	16	298	27	12	103	57	101	168	14	14	9	12	97	40	6	34	95	23	64	6	3199
	'35	1	1	1	12		42	1	1	10	1	4	17	3	2		1	6			4	2	1	2		256
	Before '35	19	1	2	78	2	144	8	5	44	8	22	61	11	5		8	23	7	2	7	22	6	9	4	1092
	Unid.*	1			27	4	22	3	1	11		10	41	4	3		11	67	1		1	2	1	1	3	613
	Total	1824	668	647	8587	1194	20163	3462	554	11111	3158	3223	12639	1278	1710	802	2386	11770	1209	362	3210	3502	1537	3657	622	213660
MERCURY	'51	1773	282	392	6144	1041	14429	3397	527	8758	1814	2334	10466	663	1568	1002	1437	10837	811	235	1792	2303	909	3004	284	157916
	'50	2679	491	822	10668	1714	21968	6131	782	15621	5309	3001	16440	1305	2927	1425	3447	22800	1267	336	4849	3813	1333	5007	768	278229
	'49	2726	504	612	9432	1727	21074	6177	1347	16898	3684	3425	16139	1361	2599	1720	3617	19498	1543	401	3818	4179	2429	5344	798	273472
	'48	418	87	211	1512	278	3183	1047	214	2821	1811	437	2455	218	488	295	788	3351	245	46	1910	816	350	867	130	48354
	'47	648	170	238	2767	392	5916	1717	349	4857	1441	915	4330	381	965	419	1102	4564	461	108	1503	1343	640	1395	195	79274
	'46	861	106	179	2426	418	5111	2076	437	4008	1318	774	3557	393	1094	529	1311	4960	493	110	1233	1327	636	1501	194	73895
	'45-'42	224	44	54	425	146	899	523	109	929	458	250	676	88	363	133	337	1694	155	32	233	393	180	434	63	19497
	'41	896	144	257	2036	428	4326	2334	427	4321	1766	1088	3211	359	1425	507	1413	5932	605	158	1249	1400	605	1793	244	79383
	'40	760	123	224	1684	348	4267	1686	326	3446	1377	841	2688	389	1231	433	1094	3852	396	134	1003	994	491	1525	202	65926
	'39	571	78	152	1215	211	3202	1169	247	2338	1015	657	2037	254	784	271	678	2246	279	97	690	751	414	1127	149	45426
	'38																									
	'37																									
	'36																									
	'35																									
	Before '35																									
	Unid.*	41	6	27	91	31	175	15	8	108	109	50	173	19	21	27	113	488	15	1	63	10	3	50	6	4196
	Total	11596	2015	3168	38600	6734	84580	26272	4773	64003	20102	13472	62142	5430	13485	6761	15337	80192	6240	1658	18343	17129	8080	22017	3033	1125648
NASH	'51	847	119	327	3298	533	8795	1280	359	4892	723	1309	7877	502	816	520	898	3383	521	235	724	2367	621	4635	154	97366
	'50	1223	239	678	4630	651	13145	2202	526	9045	2182	2034	11561	914	1333	807	1639	6843	886	353	2051	2920	1064	6945	432	158901
	'49	881	168	470	3585	609	10321	1547	590	7336	1553	1612	8827	636	972	591	1357	5021	751	353	1876	2152	1140	5604	384	119560
	'48	679	103	355	3453	354	9304	1318	366	6455	1184	1133	7748	717	742	343	1306	3807	513	205	1632	1668	933	4466	227	97259
	'47	577	92	338	3211	311	8399	1196	264	5748	1100	1098	6622	647	669	328	1123	3499	508	171	1586	1515	806	3584	162	87743
	'46	573	74	252	2994	286	7810	1096	289	5593	908	1028	5977	577	558	362	1127	3297	441	156	1350	1563	837	2965	138	83509
	'45-'42	202	45	64	678	92	1593	262	161	1551	288	561	1524	187	191	191	397	983	158	36	183	699	224	1317	60	24972
	'41	505	90	186	2506	240	5196	560	275	5157	641	1613	4643	499	249	349	862	1757	369	110	494	2039	605	4359	134	67731
	'40	340	70	157	1779	132	3413	354	137	3683	513	1048	3533	303	205	214	464	1143	261	90	319	1090	420	2992	95	46342
	'39	268	40	145	1316	63	2790	236	106	1946	353	717	2370	307	132	163	291	585	168	92	183	711	257	2152	78	32137
	'38	196	29	92	1032	46	2124	159	97	1008	188	522	1155	140	63	92	224	383	136	70	147	438	146	1691	45	19898
	'37	286	76	194	1535	84	3221	165	106	2433	223	804	3267	334	85	143	338	529	193	127	183	911	305	4388	75	37930
	'36	186	48	115	528	38	1546	67	42	776	131	577	1141	129	37	98	122	225	112	54	92	447	199	1280	44	15945
	'35	59	11	36	129	13	343	21	17	185	32	95	253	27	7	21	28	40	50	10	38	61	31	519	4	4835
	Before '35	112	17	98	458	14	1315	50	67	403	58	207	692	76	25	64	63	111	65	58	50	179	94	585	25	9819
	Unid.*			4	21	3	49		3	42	20	28	203	9	7	4	41	98	3		2	5	5	54		1959
	Total	6038	1221	3509	31155	3486	79384	10513	3405	58203	10097	14384	67193	6004	6091	4290	10480	31684	5135	2120	16938	18782	7857	47541	2055	902939
OLDSMOBILE	'51	1106	178	532	4146	597	13965	2003	354	6075	1526	1018	8725	567	1079	614	1110	6333	540	201	1921	2113	710	3538	193	122271
	'50	3050	570	1182	14181	1553	38336	6897	1283	23057	4820	3991	26541	2450	3437	1465	4871	22945	1805	907	6203	6534	1697	8251	813	374106
	'49	1795	370	793	9991	983	29181	4544	837	17424	3062	2975	19307	1938	2285	986	3289	12605	1144	677	4465	5357	2010	7120	592	286322
	'48	1049	192	504	6139	516	18244	2203	484	10933	1760	1670	10912	1074	1083	568	1907	6667	544	311	2365	2976	1298	4304	318	156973
	'47	1226	170	546	7145	558	19819	2595	436	12121	1892	1916	12273	1237	1232	577	2032	8968	762	376	2597	3194	1600	4528	330	173443
	'46	622	99	386	4702	380	11934	1635	255	7021	1149	1241	7398	866	773	340	1205	4310	502	259	1554	2129	934	2798	189	104363
	'45-'42	354	77	207	2170	223	5715	920	158	3844	606	605	3874	549	417	179	539	2736	342	134	545	1283	521	1617	117	56453
	'41	1453	293	884	10065	871	23697	3565	465	15791	2777	2933	15893	1945	1712	880	2883	9173	1290	567	3200	5037	2153	6696	393	231887
	'40	965	200	689	7413	598	17380	2342	336	10687	2125	2106	11452	1559	1154	568	1814	5680	1019	517	2246	3127	1618	4574	306	162017
	'39	742	126	582	5092	339	11625	1393	253	5919	1394	1390	7420	1056	610	410	1227	3185	552	329	1339	1843	1042	2900	253	101285
	'38	439	89	384	3211	193	7876	829	139	3381	928	921	4058	637	291	183	650	1951	336	234	680	1405	654	1900	103	62375
	'37	901	159	564	5610	348	13459	1318	242	7377	1535	1701	8620	1327	508	372	1064	2931	642	324	1108	2689	1295	4187	243	118435
	'36	683	145	528	4267	189	10342	716	156	5418	931	1432	5366	933	292	252	632	1556	472	290	767	1895	963	3224	142	83139
	'35	340	59	170	1681	99	4015	288	116	2011	538	564	1959	309	149	149	220	624	203	140	355	750	365	1334	75	35648
	Before '35	253	39	154	1081	45	3018	144	101	1316	229	386	1339	136	94	128	144	332	96	117	144	540	295	933	92	21483
	Unid.*	25	4	13	65	9	115	5	4	92	33	48	1057	19	10	10	87	295	1		9	5	9	56	4	5109
	Total	15004	2770	8098	88959	7491	228721	31397	5619	132669	25307	28097	145984	16602	15126	7481	23773	87411	10380	5403	29498	40887	17124	57860	4123	2079288

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

• TOTAL REGISTRATIONS •

CARS IN USE BY MAKES, STATES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D.C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont
PACKARD	'51	462	299	256	4007	554	1075	96	264	1133	824	280	4735	1556	963	746	592	546	226	911	1068	3838	1555	275	610	295
	'50	697	241	340	4808	783	1102	175	476	1664	901	306	9445	1956	1216	1127	750	674	242	1336	1501	2635	2370	348	1399	280
	'49	668	310	580	5660	843	1184	194	554	2059	1070	361	7400	2529	1708	1313	1041	981	355	1032	2181	4609	2055	492	1973	454
	'48	426	451	395	8336	678	1421	192	578	1886	859	274	6050	1976	1327	838	750	722	472	1275	2450	4832	1349	377	1331	305
	'47	273	204	144	4482	339	730	90	307	934	520	143	2652	852	492	363	346	413	207	602	1344	2406	658	168	700	142
	'46	245	183	130	3451	217	629	75	235	735	389	86	2014	670	367	295	320	278	147	481	1090	1336	609	135	561	96
	'45-'42	338	191	93	3430	225	590	60	168	770	416	78	1673	493	282	206	296	301	123	396	1070	1047	314	122	320	71
	'41	482	374	290	8245	563	1485	155	333	1759	730	172	3312	1052	513	444	586	473	309	972	2663	2033	683	210	1168	162
	'40	510	462	270	9007	648	2176	215	301	1950	861	212	4384	1266	616	588	707	545	376	1253	3159	2249	1209	225	1374	176
	'39	205	201	102	5101	306	868	89	147	825	356	75	1737	496	267	227	315	226	195	525	1493	836	505	91	638	62
	'38	162	196	99	4350	247	846	82	101	697	266	74	1435	420	310	235	285	156	147	448	1404	616	526	65	559	61
	'37	296	345	145	6611	538	1830	185	188	1178	543	140	2597	751	541	396	600	243	423	923	2971	1798	927	148	972	167
	'36	99	119	37	3608	176	536	64	81	381	148	48	749	320	177	97	170	72	136	290	994	391	351	39	320	42
	'35	28	35	13	1403	80	187	24	17	116	39	20	244	93	71	54	70	31	50	109	322	129	133	8	109	21
	Before '35	26	62	13	1247	73	263	26	37	116	53	22	227	79	48	21	54	19	73	117	350	254	139	16	108	9
	Unid.*	4	6	5	31	7	64	7	238	95	121	3	87	9	17	4	18	5	2	67	7	334	5	9	33	
	Total	4981	3698	2828	73777	6277	14986	1719	4023	16299	8076	2292	44741	14522	8917	6954	6910	5685	3483	10737	24087	29573	13586	2727	12375	2353
PLYMOUTH	'51	329	662	2112	17445	2675	4305	774	2619	3832	4731	1065	24464	8922	5605	3376	3452	3283	1500	4121	8843	18789	6787	2450	3449	905
	'50	6519	2050	4652	37372	5008	7258	1204	4207	12048	8996	1998	40787	15656	11171	7858	6886	7935	2557	7771	16148	30706	13338	5185	15657	2162
	'49	6237	2204	4333	37480	5161	7190	1031	3613	11373	7690	2158	38973	15714	11864	8116	7199	7348	2451	8308	16622	27958	13038	4233	14463	2256
	'48	4431	1488	2548	25609	3012	4176	595	2509	6421	5731	1306	22966	9058	6939	4927	4535	5663	1722	4660	10655	15836	7667	3333	8983	1283
	'47	3777	1524	2210	25515	3136	4276	595	2272	6458	4972	1277	22086	8986	7091	4800	4433	4542	1627	4728	9923	15100	7280	2710	7870	1305
	'46	3226	1001	1754	15442	2157	3152	408	1176	4691	3704	844	14978	6576	4466	3265	3443	3164	1079	3240	7172	10110	5163	1917	5638	838
	'45-'42	1680	827	874	9592	1071	1830	203	599	2666	2140	516	6080	3778	2218	1610	1945	1809	598	1554	3675	4869	2855	939	2567	408
	'41	5588	2462	2661	41884	4009	6209	925	1971	10351	7692	1669	26514	15421	7996	6019	6941	6209	2396	7091	17262	21410	9295	2995	10928	1489
	'40	3820	1914	1822	38072	2923	6662	714	1224	7147	5026	1424	21104	11845	6189	4508	5205	3854	1812	5473	12929	14038	8195	1969	8983	1211
	'39	3069	1469	1307	28326	2866	6295	649	982	6181	3952	1174	17441	8224	6274	4014	4754	3274	1700	4863	13006	11146	7604	1617	8018	928
	'38	1507	886	891	19349	1690	3466	462	458	3201	1877	715	9104	5825	3857	2766	2977	1975	1110	2903	7082	4556	5340	862	5009	595
	'37	2609	1835	1662	31962	3782	6496	759	596	5012	3360	1413	16482	9876	6058	4950	5881	2577	1819	5332	11343	12382	8598	1437	8096	1066
	'36	1489	1253	992	27520	2935	4680	580	370	3554	2213	1150	11114	7398	4741	3561	3730	1700	1209	3782	7834	6765	6495	1106	5702	948
	'35	838	648	554	16895	1259	1889	242	137	1466	1157	599	4413	3641	2581	1953	1894	678	565	1417	2739	2647	3432	495	2956	615
	Before '35	936	760	619	19926	1599	2542	353	139	2209	1383	547	4719	3720	2300	1987	2764	986	972	2094	3043	2876	3228	665	4903	486
	Unid.*	62	18	131	124	23	321	23	1780	339	743	15	544	55	58	51	140	36	8	209	43	2382	31	105	211	5
	Total	49081	20982	29120	390513	43306	72727	9517	24652	86947	65367	17868	281769	134695	89505	63761	65979	55003	23127	67546	148319	201638	108299	31818	113433	16483
PONTIAC	'51	2345	648	1228	13541	1752	2981	671	1181	3623	4002	745	12797	5891	3684	2653	2448	2309	963	2417	4820	18561	4582	1423	2092	788
	'50	4864	1651	2976	33531	3869	5796	1547	2594	9197	7088	1857	29676	11877	8239	6173	4828	5977	1899	5339	12382	28445	9525	3480	9186	1742
	'49	2788	769	1782	27395	2388	4857	704	1542	5347	4376	1298	19937	7738	5406	4007	3173	4018	1484	3909	9536	17010	5717	2197	6144	1215
	'48	2022	1260	1360	19406	1970	3952	568	1210	4005	3031	880	15676	6379	4049	3069	2506	2711	1320	3063	7777	13934	4660	1597	4304	760
	'47	1670	836	1152	17372	1858	4050	540	1088	3377	2576	706	14299	6006	3528	2907	2437	2280	1390	2992	7507	12991	4174	1214	3879	540
	'46	1151	558	674	10575	1100	2612	317	642	2174	1628	412	8241	3512	1923	1639	1579	1254	890	1734	4348	7320	2605	763	2224	305
	'45-'42	844	389	459	6815	726	1399	220	265	1458	1139	290	4110	2037	1074	1012	1016	1013	464	916	2476	4255	1358	605	1300	272
	'41	2877	1481	1561	32291	2753	6231	783	1187	5376	3532	954	18253	8348	3986	3772	3897	3351	2119	4015	11332	16351	5319	1707	5823	658
	'40	1505	833	945	22209	1645	4352	540	780	3157	1933	595	11172	5249	2989	2251	2465	1533	1411	2822	7115	9397	3455	900	3742	331
	'39	1004	485	691	13110	988	2959	340	367	1895	1243	297	6545	2850	2075	1472	1539	1016	1010	1769	5111	4887	2310	577	2423	213
	'38	675	307	305	8050	603	1479	204	179	1211	599	179	3924	1675	1333	1093	979	563	700	1019	2705	2423	1607	312	1566	152
	'37	991	646	618	16561	1437	3422	459	276	2165	1104	509	8548	4487	2859	2320	2131	708	1170	2180	6007	7115	3749	462	3202	396
	'36	427	380	356	10380	794	1764	233	109	1045	445	299	3208	2268	1412	1214	1055	358	630	922	3083	2617	2011	287	1763	187
	'35	155	193	139	4550	449	672	96	45	477	221	124	1221	931	643	552	391	129	247	374	1050	1033	1008	80	727	121
	Before '35	151	139	108	2944	356	916	135	60	544	271	61	1200	747	722	620	379	144	412	471	1343	1063	1095	96	743	118
	Unid.*	23	9	49	76	15	236	18	715	211	364	9	330	38	38	38	88	45	6	76	52	1006	15	63	87	2
	Total	23392	10584	14425	238806	22703	47478	7375	12240	45262	33552	9215	157133	70027	43839	34792	30911	27397	16115	34029	86824	148416	53090	15723	49105	7783
STUDEBAKER	'51	1577	655	842	12471	985	2035	450	546	1782	2144	859	9002	6741	2355	1648	1530	1691	523	1584	2834	6585	3247	1007	1202	606
	'50	3839	1973	2123	33762	2434	4230	1092	1299	6216	4678	2073	20395	15201	5487	4104	3565	5467	1202	3838	8822	12836	8052	2457	6090	1729
	'49	1302	766	806	16878	914	1768	327	587	2397	1739	933	7433	4392	2129	1548	1309	1820	488	1624	3115	4386	2731	832	2232	694
	'48	1547	1254	827	19098	1325	2505	439	881	3161	2191	968	10360	7249	3021	2173	1707	2128	650	2136	4264	6241	3857	982	3039	875
	'47	1278	888	526	14805	1365	2063	350	629	2794	1743	775	9249	6456	2831	1999	1353	1626	557	1758	3265	5282	3179	732	2480	625
	'46	205	97	77	4364	163	287	49	87	381	238	91	1036	638	313	223	181	251	107	244	477	803	379	106	349	94
	'45-'42	507	225	218	4961	459	550	99	139	801	615	291	2488	1668	836	520	487	695	164	523	1002	1332	1135	254	780	261
	'41	1210	638	459	14965	1181	1669	316	431	2229	1320	729	6381	4645	2232	1299	1159	1413	439	1505	3105	3406	2938	438	2292	546
	'40	822	479	403	12073	888	1159	226	264	1588	895	482	4373	3189	1571	885	823	899	295	1047	2005	2020	2135	314	1880	446
	'39	260	330	200	9689	571	860	208	204	1045	479	355	3010	2113	1084	622	569	394	255	828	1737	1333	1525	163	1216	290
	'38	71	151	83	4602	294	445	88	92	377	184	152	1250	870	532	292	244	168	136	409	745	423	743	48	404	131
	'37	159	241	118	5782	475	886	181	106	588	291	282	2096	1656	819	546	408	207	254	758	1395	850	1256	76	711	181
	'36	65	126	34	4449	226	304	60	41	200	135	128	791	751	383	228	176	109	103	238	481	272	576	27	343	102
	'35	21	62	21	1680	119	138	26	9	97	72	64	309	260	202	131	67	70	61	100	231	120	280	20	160	47
	Before '35	53	138	40	3651	194	288	54	27	167	92	63	428	329	283	218	139	94	151	185	354	317	529	31	270	79
	Unid.*	22	5	26	98	10	102	10	400	130	209	9	159	28	11	20	41	17	2	73	5	249	13	44	50	
	Total	12938	8028	6603	163326	11611	19297	3974	5723	23943	17025	8249	78760	56195	24089	16447	13737	17039	5387	16910	33837	46235	32382	7452	23388	6705
WILLYS	'51	68	58	181	1040	195	422	35	64	755	238	219	760	386	156	141	122	165	60	191	334	429	33	134	62	18
	'50	212	180	384	1933	192	741	82	134	1909	399	360	1837	804	389	301	371	332	40	589	1018	987	119	301	350	49
	'49	250	138	537	1561	167	536	31	101	1465	421	337	1801	717	509	325	460	370	58	431	738	926	146	373	402	54
	'48	643	177	635	1734	195	713	38	89	1712	377	574	3058	894	1062	535	643	560	33	503	864	1525	310	553	503	36
	'47	588	141	549	1871	164	455	25	89	1530	314	360	2292	714	1014	422	637	490	11	386	676	1471	165	552	438	22
	'46	404	44	319	730	41	539	28	26	989	79	151	1789	473	582	305	349	218	9	375	732	1342	117	290	247	6
	'45-'42	620	142	147	1280	54	226	12	23	750	186	187	562	257	186	184	220	236	30	150	362	426	105	293	133	30
	'41	489	105	109	2825	129	234	23	28	521	287	120	485	430	232	140	160	149	92	244	438	515	219	100	144	58
	'40	328	100	115	2498	159	251	20	14	630	232	88	627	443	250	170	149	196	111	243	443	516	233	96	161	50
	'39	85	37	23	1372	60	92	7	12	230	69	22	180	205	66	60	77	59	65	73	164	120	155	26	76	13
	'38	77	44	23	1142	57	81	7	4	241	91	24	228	156	93	112	63	95	26	75	114	112	161	20	99	10
	'37	117	165	63	3166	196	240	18	13	372	110	56	491	450	194	186	131	90	60	160	247	349	290	38	198	46
	'36	19	39	12	1169	21	15	1	1	90	26	6	33	50	10	8	13	20	2	8	11	34	16	10	16	2
	'35	9	16	4	914	2	6			34	11	5	14	27	5	7	9	12	2	1	2	9	3	4	5	5
	Before '35	33	37	24	1416	82	82	9	1	155	43	36	180	178	223	172	67	34	69	85	94	158	394	10	174	31
	Unid.*	4	7	17	24	4	23	1	95	100	49	6	67	12	13	3	18	5		91	6	81	2	16	8	
	Total	3945	1430	3342	24675	1718	4656	335	694	11483	2932	2551	14385	6186	4964	3051	3789	3030	668	3805	6243	9001	2468	2816	3020	439
MISC.	'51	120	78	37	3251	44	499	14	138	738	302	27	633	102	77	44	47	102	22	129	415	821	58	88	107	6
	'50	102	88	57	3858	76	656	39	217	1135	662	95	635	167	87	49	75	168	40	184	823	915	268	95	252	25
	'49	62	48	65	2238	79	302	32	109	455	492	74	1037	209	118	159	124	214	71	205	628	987	110	102	270	20
	'48	65	64	77	2442	108	710	69	242	423	320	99	1427	293	87	80	183	173	98	295	837	1019	396	114	239	28
	'47	38	17	36	823	31	87	10	33	128	271	19	187	58	46	17	54	68	15	28	174	403	30	40	105	3
	'46	34	9	26	485	16	60	4	14	125	258	9	128	46	44	13	46	44	9	12	77	249	23	28	55	1
	'45-'42	32	11	17	491	7	32	4	5	49	136	12	61	19	15	9	29	26	21	7	56	150	17	20	40	1
	'41	25	21	34	484	34	56	6	14	127	419	16	214	65	75	33	80	54	8	27	93	576	47	54	129	4
	'40	35	17	37	509	25	79	4	20	147	267	12	151	103	43	23	56	28	24	25	134	390	30	47	94	4
	'39	22	16	17	399	32	47	6	6	156	178	18	138	74	38	26	57	19	10	28	78	279	27	30	57	5
	'38	12	13	14	337	13	41	3	14	94	78	6	87	51	29	21	45	13	5	19	73	139	12	22	44	2
	'37	34	25	20	532	27	61	4	17	87	134	12	166	80	65	38	51	23	12	25	106	309	41	17	91	6
	'36	16	21	13	629	48	64	5	5	72	111	13	161	90	52	38	62	21	12	36	109	280	48	12	100	6
	'35	10	15	12	421	26	56	6	1	61	40	4	76	59	38	29	37	15	10	24	89	107	44	13	54	6
	Before '35	65	86	57	3416	296	479	84	48	282	244	59	682	274	401	275	146	67	162	223	526	595	672	61	423	92
	Unid.*	77	77	161	280	173	89	14	73	298	198	36	500	193	188	9	503	118	28	152	96	669	13	263	122	19
	Total	749	602	680	20553	1035	3318	276	956	4378	4138	511	6483	1863	1403	841	1595	1151	547	1429	4312	7838	1838	986	2182	226
Total All Makes		48 832	106313	282935	3731905	413506	5139615	900601	1733211	7899864	5609973	1749401	2347340	1105818	827165	617883	663527	506349	199312	1505385	1126807	2834551	942222	305301	922883	160723

Unid.*—Unidentified as to **model year.**

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

For Summary of Cars in Use by Makes, by Model Year, see page 124

AND MODEL YEAR—*continued*

Model	Yr.	Neb.	Nev.	N. H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
PACKARD	'51	601	194	141	2484	294	6326	969	274	3428	330	707	4963	277	453	459	982	2223	275	122	525	1119	448	1185	114	56421
	'50	607	136	250	2798	302	6884	1199	302	4547	775	892	6266	342	487	509	787	2766	358	164	1405	1033	610	1687	283	69808
	'49	729	125	262	3261	357	9300	1584	348	5409	943	1025	4864	317	672	588	993	3180	336	257	1756	1335	660	2121	272	82508
	'48	500	170	256	3441	286	10108	1027	159	4661	822	1077	6812	338	487	273	769	2999	314	209	1279	1294	732	1549	175	79254
	'47	276	77	139	1756	136	4504	504	88	2334	430	420	3014	179	257	142	494	1383	161	118	630	685	357	635	85	38244
	'46	196	61	139	1442	121	3492	453	53	1897	323	310	2537	165	224	90	366	1112	139	104	547	540	262	823	49	29589
	'45-'42	127	80	83	1106	79	2420	323	27	1681	226	328	2078	212	185	36	395	956	112	73	229	547	254	458	47	25315
	'41	285	128	251	2848	196	5817	741	45	3212	522	758	5128	433	434	124	723	1774	282	191	990	1262	580	1062	88	57162
	'40	366	129	267	3778	206	7903	848	81	3945	562	908	6485	481	487	85	878	2043	238	269	1053	1397	750	1317	120	69696
	'39	170	64	111	1693	75	3522	429	16	1417	327	383	2986	291	242	55	356	794	112	103	998	533	329	603	49	30737
	'38	202	60	80	1573	85	3519	316	37	1356	263	394	2028	243	199	63	264	607	147	94	399	516	347	539	37	27148
	'37	285	89	264	2906	144	6515	608	55	3015	378	704	4526	560	381	118	502	973	227	204	614	1008	605	1045	76	51236
	'36	111	46	69	887	38	2255	186	20	923	138	336	1465	144	105	32	105	274	100	84	272	315	211	518	32	18031
	Before '35	91	9	25	345	16	792	38	9	276	55	130	543	41	22	17	25	79	40	38	76	127	57	162	11	6392
	Unid.*	28	22	36	483	19	951	39	10	288	90	142	496	72	29	19	50	96	27	31	45	140	43	94	7	6572
	Total	4486	1381	2395	30809	2307	73959	9242	1524	38417	6158	8495	58162	4100	4648	2622	7312	21281	2869	2043	10432	11742	6448	13481	1367	649153
PLYMOUTH	'51	3024	306	970	9104	1234	23342	4807	1209	15133	3089	1710	22414	1081	2553	1666	3249	11469	944	534	5643	4367	2055	6626	468	268469
	'50	5629	715	1619	17884	2097	45355	9766	2821	33476	7632	5580	43542	2961	4894	2616	9668	29842	2044	1178	10935	9595	2534	10331	1239	538965
	'49	5974	681	1449	18638	2133	46834	9925	2872	34292	6779	5959	43873	2938	4518	2757	9457	29978	2296	1108	10955	10437	5841	12399	1422	539397
	'48	3740	477	1125	10874	1249	28653	5843	2013	19536	4817	3438	23492	1720	2708	2016	5514	17716	1515	693	7375	6726	3718	7216	880	327182
	'47	3989	423	988	11264	1363	26892	6291	1793	20684	4122	3410	23594	1780	2676	2079	5031	16938	1451	694	6794	5802	3801	7112	775	316221
	'46	2470	275	665	7692	1002	18726	4698	1142	14241	3239	2190	15839	1277	1999	1257	3898	12332	990	473	4834	3818	2858	4529	517	218985
'45-'42		1153	175	380	3883	520	9249	2795	616	8171	1318	1567	7889	788	1347	537	2216	6350	793	299	1645	2970	1412	2332	249	115273
	'41	3718	611	1464	17632	1682	40794	10261	1908	34508	4766	5943	35137	3432	4922	1638	7982	20298	2203	1018	9321	8878	5822	9889	876	463952
	'40	2810	450	1275	13916	1135	32823	6322	1250	26127	3853	4674	26801	2750	3277	1363	5057	13130	1738	799	7436	6104	4092	8304	614	351970
	'39	2807	384	1205	12997	957	31350	5921	875	21046	3228	3755	23320	2988	2919	1249	4490	10879	1449	760	5069	5014	3552	7425	544	303336
	'38	1818	206	723	6158	566	19716	2946	594	9979	2570	2289	13461	1385	1354	900	2550	6719	823	566	3419	2977	2298	5111	320	179911
	'37	3016	432	1225	12216	904	28887	4831	932	21941	3674	3270	25892	2945	2453	1142	4561	9748	1609	837	4068	6729	4363	9014	587	312267
	'36	2642	331	885	8308	720	20563	2884	584	15294	2577	4208	18952	2098	1497	896	2908	6136	1248	681	3295	4892	3790	6858	455	225303
	'35	1382	177	393	3087	375	7841	1626	508	6434	1530	2357	6969	874	788	551	1341	3160	421	342	1732	2454	1756	3519	223	105638
	Before '35	1580	211	631	4399	361	11372	2005	447	8744	1459	3166	10388	1024	998	461	1801	3423	503	494	1670	3123	2332	3545	284	129970
	Unid.*	52	5	18	198	25	207	16	7	310	80	101	1242	35	87	31	299	849	8	1	49	12	52	103	6	11121
	Total	45813	5858	14995	160160	16313	390404	80752	19469	299915	54743	55615	342385	30076	33752	21359	68920	197956	20003	10385	84213	84199	50276	104345	9450	4407810
PONTIAC	'51	2263	311	684	7282	1058	18566	3792	723	11386	2213	1492	12597	756	1909	997	2318	10015	1012	401	2727	2949	1357	4118	283	189214
	'50	4332	725	1496	16484	1797	37389	8561	1963	28198	5697	4590	28115	1888	3935	1811	6472	24349	2161	891	7771	5892	2328	8685	979	417910
	'49	2182	439	1020	13655	1111	31172	5427	1170	18527	3960	3017	18357	1435	2391	1218	3955	13621	1522	671	4861	4122	2210	6337	699	287616
	'48	2081	312	769	10486	929	23264	4290	962	15425	2887	2440	14642	1231	2149	1056	3359	9900	1158	540	3815	3278	1749	4858	425	223286
	'47	1898	273	740	10197	761	21361	4575	759	14703	2816	2620	14155	1284	2019	907	2847	9336	1019	634	3543	3267	1810	4493	358	207566
	'46	1039	166	500	6177	392	12908	2827	444	8797	1587	1598	7827	810	1351	498	1718	5308	905	375	2202	2111	1174	2704	214	123541
'45-'42		629	107	252	3165	322	5941	1938	248	4782	925	1121	4196	560	984	229	1167	3556	435	210	832	1499	732	1591	149	71486
	'41	2062	389	1032	14288	972	27567	6648	654	20978	3862	4295	18389	2285	3345	775	4216	11273	1659	746	4597	5187	2568	6910	439	290912
	'40	1306	245	790	10048	562	19476	3705	387	13198	2490	2728	12982	1422	1517	448	2209	5584	773	564	3171	3216	1818	4819	274	186905
	'39	870	133	557	6881	314	13373	2092	228	7550	1769	1433	7562	1050	968	290	1299	3062	477	330	1973	1791	969	2909	150	115205
	'38	558	84	326	4102	161	8472	1165	152	4200	1036	984	4405	517	446	208	744	2067	319	230	945	1123	548	2056	85	68856
	'37	1225	195	649	7264	322	15316	1763	305	10711	2052	2482	10565	1251	776	407	1337	3053	730	455	1690	2684	1400	4858	219	145250
	'36	716	112	358	3199	186	7295	986	170	4590	1209	1423	4103	640	380	255	677	1538	321	242	803	1271	822	2759	142	70976
	'35	365	48	142	1173	73	2957	367	126	1584	540	526	1606	252	180	144	242	724	148	97	422	580	285	1360	65	29740
	Before '35	379	37	236	1726	50	4495	379	119	1613	341	486	2255	391	199	126	204	648	82	173	388	391	316	1214	44	31308
	Unid.*	38	3	15	53	14	113	8	9	157	59	58	584	9	16	16	111	435	6	1	22	3	4	90	5	5400
	Total	21937	3577	9566	116178	9004	249556	48205	8099	164384	33433	31255	162422	18781	22944	9387	32874	104469	12427	6580	39559	39294	20090	59939	4580	2484962
STUDEBAKER	'51	1279	282	359	4070	854	9696	2201	471	6452	1062	1275	8195	459	998	697	1441	6965	846	170	1671	2770	798	2995	199	120774
	'50	2978	588	776	10371	1861	23115	5398	1296	16832	3319	3790	19649	1550	2419	1354	4677	19015	1969	559	4614	5542	1656	7014	652	303964
	'49	1089	224	442	3973	580	9825	2005	541	6090	1858	1734	8392	606	895	496	1694	5906	897	294	3298	2581	1037	2784	333	120671
	'48	1488	349	540	5775	960	12888	2812	642	8631	1667	2705	11432	893	1133	656	2005	7922	1152	368	2545	3539	1248	3488	380	157043
	'47	1366	229	353	4545	674	10577	2239	562	7388	1604	1917	9037	744	900	591	1559	7240	823	228	1958	2591	1035	2846	334	129799
	'46	227	29	60	621	80	1441	296	78	901	397	310	1212	100	117	89	254	805	98	26	621	368	169	396	31	19588
'45-'42		445	77	116	1065	154	2436	671	168	2195	418	939	2778	241	270	158	641	1961	341	64	454	1057	455	877	71	39032
	'41	1105	182	295	3534	397	7017	1784	379	6166	1171	2310	7615	606	678	486	1530	4382	946	170	1659	3035	1191	2736	293	106622
	'40	689	160	236	2440	258	5175	1083	215	4540	890	1535	5177	476	526	380	1097	2695	657	119	1224	1982	990	2056	203	75916
	'39	470	133	175	1844	185	4005	617	128	3159	582	1031	4221	448	309	196	595	1736	562	103	724	1458	708	1593	103	54429
	'38	224	37	88	916	75	1902	153	62	1180	244	545	1899	183	71	80	189	796	243	46	304	585	284	687	55	23863
	'37	368	96	167	1742	72	3229	208	104	2565	421	996	3984	329	146	134	344	1201	367	72	509	1265	527	1272	79	40425
	'36	229	52	69	523	41	1212	89	33	853	218	573	1295	76	57	58	136	445	163	16	177	610	201	687	52	18196
	'35	146	15	27	250	17	578	54	33	413	95	257	485	26	28	48	59	223	60	17	94	345	85	280	19	8038
	Before '35	234	40	81	512	30	1500	77	60	629	109	393	914	83	67	89	89	345	88	41	126	450	132	443	30	14704
	Unid.*	15	2	8	38	7	69	4	5	57	20	45	318	9	6	4	62	216	5		12	2	1	38	7	2689
	Total	12332	2464	3842	41817	5945	94717	19669	4777	68062	14057	20355	88574	6831	8610	5478	16362	61553	9225	2295	19778	28319	10508	30140	2866	1235852
WILLYS	'51	90	46	114	727	64	1290	200	78	765	33	19	741	48	79	69	249	692	81	55	89	121	65	189	147	12306
	'50	148	93	215	1395	128	3632	563	142	1790	122	103	3119	168	210	92	666	1919	159	45	342	147	317	425	286	30221
	'49	215	36	142	1167	81	2990	609	164	1685	251	60	1869	122	253	107	783	2045	149	34	400	128	479	432	217	27254
	'48	329	43	112	1048	129	3198	446	501	2286	238	58	2820	154	179	80	1290	2826	188	35	517	130	211	628	367	36273
	'47	247	56	101	877	103	2557	318	355	1891	245	77	2077	150	104	44	1012	2073	150	16	426	89	167	483	310	29284
	'46	145	35	73	977	91	2076	89	213	1474	105	19	2021	126	23	21	554	1262	70	6	226	30	35	280	143	20218
'45-'42		71	30	48	607	85	1259	112	74	725	154	145	466	101	57	30	478	996	124	14	160	198	130	135	63	13033
	'41	98	26	64	518	79	1185	302	78	930	170	334	1281	170	130	58	327	486	121	30	172	483	197	277	37	15832
	'40	68	22	76	587	48	1206	237	43	1357	194	377	1184	76	132	74	324	482	59	48	137	354	241	326	27	15767
	'39	21	9	21	240	18	753	80	17	418	91	98	278	15	38	25	66	151	24	13	76	121	80	95	6	5922
	'38	40	5	25	216	16	547	74	26	311	82	113	314	22	46	20	50	180	18	14	79	104	78	128	14	5886
	'37	111	28	38	430	37	893	148	36	1038	212	249	668	41	107	40	124	344	44	25	153	304	201	292	26	13031
	'36	5	7	6	22	10	66	10	6	120	22	124	43	5	7	6	29	47	6	9	10	105	11	17	4	2330
	'35	1	1		6	3	15	6		50	8	48	6		11		19	25	1	5	4	46	7	6		1376
	Before '35	196	10	27	171	13	581	29	45	506	46	137	447	26	43	56	85	123	15	37	43	196	70	303	7	6930
	Unid.*	2	1	1	9	1	27	1	4	15	6	6	640		1	4	54	70	1		5	4	8	11	1	1528
	Total	1785	450	1063	8967	903	22095	3224	1780	15361	1961	1969	17974	1224	1420	727	6083	13693	1212	396	2839	2520	2297	4007	1635	236981
MISC.	'51	63	15	49	636	39	2308	201	11	363	47	156	408	45	140	8	81	565	73	30	187	491	23	177	7	14203
	'50	73	36	89	992	72	5259	299	11	622	76	487	584	136	162	23	189	1199	45	48	389	641	23	246	28	22715
	'49	69	15	81	688	59	2388	226	4	531	158	197	972	90	127	8	166	1282	44	93	209	335	41	451	19	16461
	'48	104	15	88	1485	47	3760	400	17	963	90	230	955	117	163	20	152	1704	30	79	524	525	86	231	24	21642
	'47	52	18	22	136	15	532	51	12	246	38	77	102	27	47	2	53	538	12	11	70	40	12	151	8	4991
	'46	18	5	15	89	6	308	40	9	132	23	38	29	21	18	6	45	324	7	6	58	19	7	74	6	3130
'45-'42		30	1	6	42	12	121	28	3	105	16	34	28	9	22	6	72	234	12		22	21	10	72	7	2101
	'41	48	18	40	112	19	357	78	8	300	50	51	52	31	19	4	99	660	32	3	21	102	23	192	16	9031
	'40	32	7	25	83	12	352	61	7	284	50	45	97	17	31	6	61	404	12	7	34	41	42	111	12	4087
	'39	19	2	23	99	6	326	60	13	240	38	54	104	18	22	8	45	246	13	7	31	24	37	116	11	3327
	'38	25	6	20	57	3	234	38	5	110	30	27	85	24	10	5	25	178	5		33	16	21	72	6	2220
	'37	20	3	36	87	11	314	55	14	208	46	54	105	24	21	12	29	231	16	5	34	49	29	126	9	3501
	'36	36	3	20	107	6	267	25	13	226	51	71	186	25	9	7	29	196	24	7	37	39	42	123	15	3548
	'35	22	2	16	93	5	193	14	9	110	26	48	97	22	11	3	12	92	11	4	30	29	23	92	7	2225
	Before '35	186	41	88	894	60	1689	126	132	850	179	422	960	128	94	110	88	561	69	73	160	436	156	815	38	17549
	Unid.*	116	11	43	284	144	518	206	7	435	54	143	718	23	45	11	56	1230	16	6	6	181	18	122	16	8719
	Total	943	198	659	5654	519	18917	1906	275	5706	973	2135	5535	757	941	239	1142	9844	422	378	1846	3189	564	2871	228	135530
Total All Makes		432354	55128	131457	1330979	108435	3222773	600131	172995	2337938	580011	502410	2482252	218439	437757	221660	803502	2328043	198153	88386	670841	690633	371758	956560	83209	39515538

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

For Summary of Cars in Use by Makes, by Model Year, see page 124

● TOTAL REGISTRATIONS ●

TRUCKS IN USE BY MAKES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D.C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
AUTOCAR	'51	3		3	50	12	40	4	8	4	2		54	5	1	2	9	1	8	29	138	32	1		3	
	'50	10	4	1	150	22	43	10	9	16			93	11	2		9	9	9	26	244	28	3	1	11	
	'49	10	2	2	84	4	46	12	32	9	1	1	122	5	8		1	1	5	24	158	41	14		17	5
	'48	6	4		167	13	80	19	13	17	2		174	19	4		22	6	8	52	176	80	16	1	19	4
	'47	7	2		386	51	164	28	19	37	2	5	270	38	5	4	13	7	14	90	321	107	35		13	6
	'46	8	11		379	43	193	29	22	92	2	5	190	23	2	2	7	15	12	91	436	77	14	1	81	4
	'45	5	3		212	29	84	14	9	45	6	6	98	12	3	6	7	6	7	34	213	32	43		32	4
	'44	4	12		141	7	44	8	7	2	3	1	26	1		1	2	3	2	21	137	14	7		13	1
	'43		12	1	35	1	4		7	1		2	10	1	1	1	2		1	2	9	6	3			
	'42		20	1	80	10	16	5	36	19	4	13	42	7	4	6	5		12	2	12	61	7	5	2	11
	'41	2	19		268	8	97	15	46	13	2	8	80	6	4		6	8	7	45	244	18	4	4	39	4
	'40	2	3		125	1	42	8	47	4	2		48	6	2		3	1		20	179	11	2		11	
	'39		1		80		34	9	14	2		1	55	2	6		7	1	2	24	113	5			13	
	'38		2		63	5	35	7	13	2			35	3	4		2	1	1	15	87	4	10		9	
	'37		2		74	1	23	7	5			1	48	3			4		3	15	87	8	7		6	
	'36				29		11	5	3			1	35	1		1			3	10	50	4	2		4	
	'35				21		8	3	2				18	2					2	5	40		2			
	Before '35	1			129		36	10	9	2	1	2	93	3	3		6	1	1	17	99	4	4		5	
	Unid.*		2			1	1	2	1	11	4		5	1				1		2	1	13			6	
	Total	58	99	8	2447	208	1001	195	302	276	31	40	1456	147	51	23	108	72	87	558	2793	491	172	9	293	31
BROCKWAY	'51				2	1	40	7	2		3		2	3					8	59	68					
	'50	3	1		3		64	9	7		7		9	5					25	74	156	1			1	
	'49	2			2		23	7	1				14	9			3		10	61	112	6			2	
	'48	8			12		60	11	19	3	2		18	15		4	1		20	94	182	39			4	2
	'47	16			17	2	111	15	18	3	1		32	59	1	2	3		26	133	255	57			8	
	'46	6			32	1	95	8	23	7	4		34	85	1		5	1	26	83	282	61	2		3	
	'45	3	3		21		56	6	10	5			15	46			4	1	7	46	178	9	2		1	
	'44				9		23	7	4				1	6					5	33	76			1		
	'43	1			5					3	1		1			7		2		5	6					
	'42	1			9		7	1	1	3	1	1	2	1		1	1		5	6	15					
	'41	1			8		80	4	11		1		5	2			1		10	38	139	2				
	'40		1		4		25	3	7	1			3	2		1			5	18	51	2			1	
	'39				5		42	3	1				1						5	17	76					
	'38				3		35	2	1				2						3	9	57					
	'37	1	1		11	1	27	2	1	1			2						2	11	99					
	'36				4		23	3	5		1								4	10	31	1			2	
	'35				4		3	1	2	1			1							2	16					
	Before '35				7		18	1					1	1					3	7	33	1	3		1	
	Unid.*						1		3	2					1					25	2	19				
	Total	42	6		158	5	733	90	116	29	21	1	143	234	3	15	18	4	163	731	1791	194	7	1	23	2
CHEVROLET	'51	4473	871	5999	9739	3298	1967	490	683	4989	5682	988	10586	6330	4085	3694	3660	2664	1355	1888	2659	7393	3166	3511	3784	1212
	'50	9463	2611	8590	21626	5685	2967	1138	1118	9695	10370	2620	17527	9810	9769	8429	7863	6021	2035	4412	5184	15094	8273	8349	13995	3303
	'49	8115	1645	6717	17812	4978	2203	956	775	7128	8358	2366	15183	8119	9474	9048	7820	7597	1748	3399	3761	10237	8149	7583	12812	2790
	'48	6960	1812	6030	17006	4072	2558	897	837	6823	7716	2245	13812	6917	6838	8157	6279	5923	2470	3443	5170	9199	6086	6707	10070	2453
	'47	4584	1233	3188	14142	2856	1787	603	582	5077	4574	1479	9863	4766	5014	5618	4649	3216	1445	2328	3861	6484	3543	3774	7384	1549
	'46	6555	1771	4420	10660	3234	2467	975	601	5034	6863	2000	9659	6025	5542	6396	6751	4771	2206	3203	4545	6633	5584	6195	7813	2331
	'45	646	206	544	3404	386	285	98	14	747	703	301	1205	802	750	1025	994	389	358	340	479	1051	474	536	1349	353
	'44	377	132	209	1596	291	133	43	25	294	387	180	491	172	384	498	344	167	231	165	181	433	345	216	454	117
	'43	55	10	17	609	20	4	7	10	55	26	62	38	74	16	21	47	26	14	1	4	26	24	45	82	75
	'42	3120	845	1571	3067	1689	560	231	290	2218	2784	889	2473	1770	1476	2054	1655	1744	809	809	1118	1765	1655	2489	2100	940
	'41	3933	1287	2609	12663	2649	1970	593	446	3259	3859	1664	6798	4174	3935	5446	3720	2382	1322	2097	3021	4571	3951	2991	5953	1796
	'40	2811	1031	1910	9062	2121	1658	439	258	2313	2666	1314	5852	3516	3260	3623	3054	2213	1133	1700	2821	3425	3403	2484	4967	1818
	'39	1908	733	1492	6944	1814	1261	327	161	1715	1900	976	4158	2567	2706	2794	2220	1429	899	1218	2090	2395	2318	1525	3706	1051
	'38	1037	536	881	5489	1251	733	210	84	1131	1096	629	2595	1786	1713	2858	1472	813	597	753	1177	1510	1964	1016	2662	736
	'37	1729	926	1217	8039	1909	1376	357	81	1509	1748	1099	3707	2800	2382	3439	2193	1347	960	1366	1929	3151	3134	1842	3820	979
	Before '37	1109	623	1082	6910	1711	1195	252	49	1174	1285	1065	2985	2404	2013	3225	1477	1015	704	885	1442	2273	2768	1034	2928	922
	Unid.*	683	761	603	10008	1905	1919	271	38	1826	1363	953	2348	2419	1947	4192	1115	943	760	844	884	1945	4699	878	2952	1075
	Total	152	21	967	281	72	15	77	162	544	760	28	478	100	68	88	1004	51	11	154	60	1593	30	326	630	4
		58160	17722	50353	163969	40932	25790	8078	6256	54061	62968	21421	110960	66181	62526	72351	55731	45133	19460	29403	41181	80286	61409	51825	88250	23829
CROSLEY	'51	17	14		10	23	8		3	34	3		9	18		4	1	7		2	4	2	2		4	
	'50	49	11	11	23	24	4	7		33	3		20	9	1	3	5	14	1	1	3	3	2	3	3	
	'49	71	15	17	69	6	3	25		27	7		11	14	3	20	13	20	1	5	2	9	4	4	8	3
	'48	218	49	9	163	21	18	70	2	91	19		39	82	9	65	48	37	8	11	32	50	22	9	48	14
	'47	35	6	10	190	21	22	58	4	115	18	7	29	93	9	22	41	13	10	8	31	40	38	12	23	3
	'46	2	1		10			4		5	2	20		2	1		3	4	1		2				1	
	'45	1		1	2									1												
	'44	1			3									1			1	1			1					
	'43																									
	'42			1	11			1		15	1		1	3			1				1		1	1	2	1
	'41	1			8	2		1		1	1		1	2	1	1	1				3	1		2	1	
	'40	1	1		8								1	1	1		1				1			1	2	
	'39				5										1		3					1				
	'38	1			3										1		1									
	'37				9					1							2									
	'36																				1					
	'35				1																					
	Before '35			1												1		1								
	Unid.*	2			9			1		2	1		1	1			2				1				1	
	Total	399	99	50	547	97	55	167	9	325	55	27	111	225	27	116	123	97	26	33	82	109	71	32	101	21
DIAMOND T	'51	7	7	8	102	29	75	12	21	92	10	20	557	79	72	28	39	29	4	23	62	67	70	3	28	23
	'50	28	10	19	310	43	106	16	31	129	23	51	670	100	110	52	69	96	8	40	193	111	82	10	84	33
	'49	27	10	28	222	86	64	6	23	128	54	79	440	88	180	79	104	104	2	35	115	104	66	36	88	76
	'48	83	15	75	437	173	153	21	43	134	126	110	1090	238	314	232	280	250	14	71	280	204	281	95	188	175
	'47	86	26	81	466	134	141	20	48	167	149	70	1078	274	319	232	188	206	15	74	302	276	219	101	293	71
	'46	60	11	31	263	63	72	6	41	102	77	36	557	136	145	97	82	75	8	33	146	119	114	65	147	41
	'45	29	14	7	130	49	47	4	10	46	12	32	296	62	76	64	68	26	2	23	103	86	65	19	111	20
	'44	16	1	7	59	25	12	4		19	6	15	130	33	53	24	19	23	3	13	36	33	25	13	31	14
	'43	1	1		43	5				1	1	4	9	1	2	3	3	4		1	3	2	5	4	5	3
	'42	10	6	3	103	11	14	1	4	30	10	21	76	17	46	26	12	52	8	5	57	14	28	23	15	11
	'41	19	10	6	324	52	81	12	9	59	23	23	581	94	115	100	43	68	11	30	212	67	72	22	153	36
	'40	14	5	25	188	48	86	5		50	16	28	546	75	139	67	52	47	7	25	142	66	94	20	166	26
	'39	2	3	6	112	51	60	8	3	17	8	25	394	63	105	65	33	42	8	28	115	35	89	6	88	25
	'38		8	5	106	60	45	3	1	13	6	19	236	30	77	99	33	11	15	19	72	27	92	7	70	23
	'37	2	15	15	157	114	69	4	6	23	12	46	296	69	98	141	60	28	12	24	95	47	131	4	103	41
	'36	5	3	2	180	70	50	9	3	11	5	17	319	74	66	90	33	12	9	29	65	33	125	3	106	36
	'35		4	1	72	35	38	2		12	3	13	145	54	48	71	26	6	2	5	52	20	78	1	30	44
	Before '35		3	1	82	31	60	7	2	12	3	3	423	74	80	71	47	24	17	18	66	19	150	4	122	25
	Unid.*	8		13		9	1	2	7	23	3	2	74	2	3	3	19	6	1	19	3	128	2	2	15	2
	Total	397	162	335	3358	1088	1173	144	252	1068	549	614	7919	1582	2053	1564	1170	1111	150	515	2101	1456	1788	416	1844	726

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

STATES AND MODEL YEAR

Model	Yr.	Neb.	Nev.	N.H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
AUTOCAR	'51	2		3	88	1	177	47		64		10	207	25	8			24		2	21	2	2	8		1100
	'50		3	11	108	6	315	76		96	1	27	180	55	8		8	55		1	51		5	3		1724
	'49	2	1	9	78	3	288	27		59	1	11	193	41	7		4	25			24	5	2	11		1395
	'48	1	2	5	170	6	502	46	2	104	4	67	389	74	4		6	53	1	5	60	16	31	34	9	2491
	'47	1	2	21	344	1	849	39	7	225	7	49	554	82	5	6	2	21	2	5	56	33	48	54	1	4010
	'46	1	7	16	423	3	907	82	2	172	10	16	451	165	9	2	1	18	4	4	113	15	66	19	2	4207
	'45			5	179	3	370	32		112	6	39	193	58	3		2	16	1	4	26	21	19	29	5	2035
	'44	1	2	1	99	1	115	4		52	5	5	154	27	2		1	6	1		24	6	7			970
	'43			2	15	1	28	3		3	14	3	7	2		1		6				4	5	2		193
	'42	4	1	1	72	2	77	5		18	14	21	67	25	5		5	18	5	2	9	22	4	5		765
	'41	2	3	6	194	4	375	20		72	3	17	267	79	1			19	2	1	39	15	6	10	2	2082
	'40		3	5	96	1	266	8		62	3	6	145	39	3			4			8	4	3	4	2	1179
	'39	1		4	116	1	282	1		31	1	4	163	23				2		1	14	1	6	6		1028
	'38			2	78		147	5		16			92	11	1					1	2		1	1		655
	'37		1	2	95		267	1		31		1	88	17				1	1		6		2	6		813
	'36		1		57	1	181			13		2	71	11							1	1	1	6		505
	'35		1		32		101			5			25	8								1	1	1		278
	Before '35				79	1	299	3	2	17	3		145	16						1	4	4	2	5		1007
	Unid.*				11	1	20	3		2			59	7			1	3	1						1	186
	Total	15	27	93	2334	36	5864	404	13	1156	74	278	3450	765	56	9	32	271	18	27	456	151	211	204	18	29823
BROCKWAY	'51			7	236		403	2		10			481	2	2		3			8	20		3			1371
	'50			13	359		828	6		17			504	9	1		5			10	32		72			2220
	'49			10	182		803	1		11			314	14	1		3	1		7	13		22			1434
	'48			16	396		924	13		41			654				7	8		11	25		37		1	2627
	'47	1		15	567		1282	6		51			881	11	3		8	13		23	39		120	1		3777
	'46			12	432		1394	10	1	64		1	471	15	3		8	1		21	43	1	48	5		3298
	'45			3	260		799			18			267	6	1		1			5	19		14			1619
	'44			1	169		332	2		5			231	3							6		11			927
	'43	1			4		8					1	32				1	6		1				1		86
	'42			4	32		98			1	2	1	58	1	1			2		1	7	4	4	1		272
	'41		1	3	221	1	617	2		5			234	9						7	15	1		1		1615
	'40				118	1	570			3			133	4	1		5			3	5	1	1			969
	'39			1	97		523			2		1	140	5						4	7		2			932
	'38			1	66		347	1		2			69							2	8		1			609
	'37			2	70		370			1			88	3						2	6		1			662
	'36			2	78		375	1	1	3			76							2	2	1				625
	'35			3	28		159			1			19								3			1		242
	Before '35			8	59		329						57	1			1			1	7		3	2		541
	Unid.*			1	24		41						83					1								203
	Total	2	1	99	3418	2	10202	44	2	232	2	4	4792	83	13		38	32		106	257	9	337	12	1	24217
CHEVROLET	'51	2480	311	602	4575	2450	8411	4810	785	8219	4262	1868	7096	470	2796	958	3627	17243	1141	339	3043	2447	1457	4974	848	178780
	'50	5108	609	1163	8441	4513	14636	10994	2313	16331	10519	4434	18049	1008	5557	2429	9672	37957	2144	775	8158	5266	3711	8220	2070	381142
	'49	5361	506	977	6388	3711	11367	10752	3805	12012	8688	3959	13239	769	4627	3015	8927	27696	1723	660	7236	4384	4652	7379	1748	324150
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	'37																1	1								15
	'36																									
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	Before '35	2									1															8
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DIAMOND T	'51	72	5	3	97	4	273	21	3	165	4	56	278	7	10	11	13	78	7	5	13	70	21	71	11	2783
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	'47	208	9	19	327	53	1082	139	68	432	78	280	724	45	53	119	109	341	44	25	155	195	103	272	56	9956
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Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

TRUCKS IN USE BY MAKES, STATES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
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	'48	35	24	1	455	39	160	20	70	87	4	9	312	161	54	22	40	29	34	111	455	331	98		125	16
	'47	19	22	2	316	58	115	27	117	50	1	16	472	140	74	22	31	24	32	162	319	392	81		204	5
	'46	21	13	1	283	40	99	19	58	39	11	11	358	145	35	28	29	19	38	80	385	248	65		241	2
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	Unid.*		1			1	1	2		1		1	13				1			1	3	140			5	
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DODGE	'51	742	262	1083	3759	695	599	135	186	1687	977	290	3911	2021	951	612	730	455	256	942	796	1975	1262	530	912	278
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F.W.D.	'51		1		20	8	2	1		1			2	1				1			3		8	2		3
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	'48		6	1	51	29	10	2					39		19	7	12				24	9	27	2		8
	'47		12	2	141	60	19	13		6		4	33	1	18	5	1	5	1		13	6	30	3	5	10
	'46		2	1	99	30	9	5		5		3	6	3	18	8		1	9		17	5	34	6		18
	'45		1	1	19	4	2	1					3		6	10	1		3		9	3	9	1		11
	'44				17	4	1			1			4		1	13	1		4		1		3	1	1	3
	'43				3								1								1		1			2
	'42		3		27	2	1				2	2	3	1	3	6					1		1			2
	'41				10	16	4	1				1	7	1	5	10			2		2	6	3	3	3	2
	'40				10	3	3					3	2	1	6	3					6	1	9	5	1	9
	'39		1		8	2		1				2	4		3	3			1		1		3		6	
	'38		2		13	2															4	1	10	1		8
	'37		4		19	3	2	1					1	1	11				1		13		3	1		4
	'36		1		7	4	1					1	1	1	7	11	1				3		15	1	1	9
	'35				3		1	1				3	8		27	4					14		26	1	6	6
	Before '35		4		23	6	1	2							11	1			1		15		12			
	Unid.*					1	2					2	2	2	34	4			5		2	1	27		7	12
	Total		45	8	432	192	64	30		17	2	26	133	16	186	92	4	33	29	3	138	39	241	31	34	117

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

AND MODEL YEAR—*continued*

Model	Yr.	Neb.	Nev.	N. H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
DIVCO	'51			10	110	1	218	34	2	187	33	22	230	12	6	2	17	34	21	1	41	20	20	80	1	2077
	'50	2		9	234	2	363	64	4	399	60	40	323	52	24	7	38	150	4	4	79	74	32	97	4	4247
	'49	1	3	9	210		377	88	3	336	44	19	228	37	15	1	19	144	6	7	53	53	26	125		3584
	'48	1	1	39	353		835	86	3	439	55	22	515	106	2	5	32	164	13	10	78	140	42	162	5	5769
	'47	4	2	21	429		978	36	3	393	42	41	622	86	1	4	16	154	20	9	69	92	36	195	6	5791
	'46	2	3	12	218	2	328	45	6	303	53	40	353	80	9	11	39	83	24	6	81	65	39	147	4	4233
	'45	1		6	126		130	8	1	125	13	11	207	29	1	4	4	56	6	1	29	33	16	33	1	1773
	'44	1			11		4	1		9	2	10	68	4		1	1	1			15		2			269
	'43				22		2			2		1	31							1	2	1				113
	'42	3		2	34		39	15		30	8	14	27	15	3	1	4	8			30	8	6	18		591
	'41			17	197		184	27		173	14	13	228	46	7	2	21	24	2		47	66	26	29		2506
	'40			2	209		225	21		105	8	7	104	60	6	3	14	11	1	1	26	18	19	30		1567
	'39			2	167		141	17		114	8	2	114	25	3	2	10	32	3		21	32	10	32		1347
	'38	1			140		174	21		54	1		87	9	5		7	15	3		24	11	10	21		925
	'37			1	22		30	13		30	13		42	3			6	5			4	3	4	16		399
	'36				29		38	6	2	28			15	1	1		6	2			4		1	4		354
	'35				3		15	2					8				6				1			4		123
	Before '35				6		6	3		14			2				11				2	1	1	1		243
	Unid.*				4		6			7	1		40		1		3	5	27					1		287
	Total	16	13	132	2517	5	3694	430	28	2748	352	242	3444	567	85	43	256	888	131	40	606	617	338	982	21	38187
DODGE	'51	411	111	181	1474	378	2791	696	211	2692	791	695	5425	122	528	312	798	3396	228	75	634	1143	503	1256	193	51238
	'50	926	175	456	2678	710	6464	2652	570	4522	2390	1473	5861	515	1433	656	3216	7704	318	323	1926	1780	950	2017	431	104278
	'49	1251	204	400	2918	946	6781	3065	661	5243	2761	1477	6353	367	1471	782	2573	9007	580	309	2426	1913	1823	2351	535	109231
	'48	1362	222	333	2831	671	7499	3115	937	5537	2061	1966	7609	431	1329	995	2001	8970	487	265	2046	2116	1685	2208	511	109935
	'47	1410	223	446	3152	793	7686	3317	901	5829	2486	1822	8617	442	1539	1110	2262	7721	490	440	2453	1985	2017	2269	476	115982
	'46	1163	212	415	2682	641	7387	3018	793	5647	2162	1597	8466	451	1436	848	2459	6953	440	379	1936	1902	1834	2141	372	105084
	'45	240	42	75	416	109	1106	420	207	901	614	266	1797	82	230	184	224	1349	59	78	504	279	313	324	72	19071
	'44	82	13	15	154	36	353	144	78	264	208	91	665	21	79	54	74	382	28	17	133	138	104	127	35	6889
	'43	10	11	6	43	31	66	14	17	46	54	77	228		5	4	21	112	6	7	7	128	32	15	2	2115
	'42	357	92	69	783	312	1787	989	364	1293	1049	947	523	104	632	261	1084	3061	246	119	496	1543	627	506	160	33788
	'41	516	163	247	1893	476	3839	1702	503	3017	1604	1482	3245	290	994	431	1183	4244	389	278	1581	1827	1190	1169	302	65342
	'40	309	115	194	1259	233	2593	1294	382	2101	871	748	2193	182	512	312	659	1964	222	188	875	966	787	924	141	40236
	'39	311	64	203	1169	201	2550	845	261	1732	601	544	2866	197	322	268	446	1451	203	134	636	764	604	789	165	33715
	'38	222	41	93	806	88	1690	344	169	996	448	256	1231	64	156	153	305	890	68	81	385	471	372	494	89	19915
	'37	257	103	141	998	168	1796	524	255	1625	641	721	2140	145	287	203	495	1188	152	133	503	945	621	686	137	31018
	'36	448	111	133	1135	168	2113	554	290	1991	714	1077	2139	141	269	283	542	1149	285	125	459	1274	691	1187	154	35302
	'35	212	58	66	441	79	940	291	211	813	327	470	480	80	109	164	156	356	123	52	252	650	263	605	78	13957
	Before '35	309	84	91	486	56	1281	223	231	797	294	530	1211	103	117	173	195	427	97	60	187	816	310	631	97	18366
	Unid.*	20	1	12	81	12	119	13	3	48	52	16	1190	19	28	15	227	261	299		20	23	6	39	8	5350
	Total	9818	2045	3599	25412	6107	58643	23420	7002	45294	20148	16261	59479	3756	11468	7188	16922	58605	4680	3083	17459	23643	14642	19638	3939	922532
FEDERAL	'51			3	85	1	97	6	6	53	1	12	105		2		10	5	8	2	7	5	20	12		724
	'50	3	2	3	82		227	13		110	1	14	139	5			21	15	2	1	22		16	21		1029
	'49	4		6	96		149	35	15	65	2	15	88		1	4	20	16	4	3	14	7	18	11	4	960
	'48	34	2	7	130	22	379	47	73	183	24	69	225	4	12	33	79	39	24	11	68	25	134	57	4	3162
	'47	73	4	13	196	27	437	98	42	358	46	123	358	8	26	47	135	112	34	17	126	45	167	109	11	4849
	'46	43	2	11	183	18	364	65	6	284	29	102	244	9	23	6	106	68	15	11	66	51	98	62	9	3507
	'45	24	4	6	109	5	228	14	3	110	30	130	100	1	3	2	23	36	7	1	35	14	34	30	2	1636
	'44	2	1		40	5	93	6		26	8	50	36	1	2	2	14	11	7		10	13	11	17	1	614
	'43	6	1		11	2	13	6		11	4	23	9		13		10	8	1		7	22	15	2	2	309
	'42	3		1	33	2	61	5	3	29	17	64	11	3	4	1	20	18	3	1	10	24	6	6	1	647
	'41	2	1	3	61		118	3	5	50	6	68	86	2	1	2	35	12	3	1	16	39	12	7		888
	'40	1		8	61	2	105	2	3	31	5	34	36	12	3		16	2	1		5	6	9	5		703
	'39	1		4	38		57	7		26	2	21	41	9	1	2	27	2	2	1	4	5	3	5		521
	'38	7		1	41		35	2	1	15		13	14	4	3		14	2		1	4	6	4	8		364
	'37	9			33		53	2	2	23	7	26	16	8			7	2			1	19	6	11		512
	'36	8		2	24	1	70	2	3	23	7	45	22	12	2	1	8	3	2		1	13	6	13		541
	'35	4			50		29		2	6	3	27	7	8		1	5	2			7	1	7	7		323
	Before '35	19		4	65		114		2	18	8	52	34	28		3	12	8		2	7	19	2	27		796
	Unid.*	5			7		9			3		4	3		1		7	4	1		1	1	1	1		246
	Total	248	17	72	1315	85	2638	311	166	1444	200	890	1555	114	97	104	589	376	114	52	404	321	563	411	34	22281
FORD	'51	1684	178	492	3184	1190	4160	3040	614	5996	2707	1154	5353	378	1655	666	2295	11060	671	232	2120	1424	975	3259	521	121160
	'50	4568	484	902	6613	2291	11274	9942	2347	13984	8029	3661	15671	844	4207	1981	7223	30629	1375	514	6039	4185	3172	6496	1201	303948
	'49	2844	387	746	4483	1296	8037	6943	2056	7837	4989	2337	8660	563	2971	1446	4987	17856	904	479	4214	2874	3032	4188	851	198211
	'48	3212	366	639	4800	1437	10216	7276	2533	10275	5870	3065	12176	777	3245	1742	4474	17370	1117	736	5688	3648	3581	4944	1096	224397
	'47	2324	274	642	3986	981	7952	5316	1780	7329	4178	2119	9143	580	2507	1462	3481	12020	824	547	4466	3042	2823	3335	729	168535
	'46	1978	262	539	3579	940	7366	5146	1317	6589	3761	2071	7342	540	2982	963	3936	13604	780	555	3114	2861	2247	3371	679	160311
	'45	591	52	168	989	201	2055	1335	368	2330	1518	487	1194	129	617	303	498	3752	161	128	1154	669	596	666	176	40338
	'44	281	22	63	509	85	603	623	151	716	511	234	386	49	338	156	222	1403	92	66	363	348	234	376	101	16392
	'43	64	30	38	282	29	163	222	44	124	337	235	779	12	103	49	41	686	129	12	113	340	130	53	36	8455
	'42	947	209	167	1130	467	1859	2281	766	1745	2210	1366	1683	194	1372	505	1277	6413	481	129	1042	1973	905	1134	315	63424
	'41	2152	315	588	3297	912	6062	4194	1703	5657	4250	2233	6478	643	2390	1160	2996	12231	781	490	2842	2876	2349	3258	595	144336
	'40	1630	223	444	2223	683	4425	2662	1221	3845	3241	1439	4563	457	1659	897	1885	8041	627	327	2109	1705	1672	2423	434	102612
	'39	1186	178	372	1832	470	3138	1796	935	2610	2459	1070	3127	388	1124	684	1312	5612	434	288	1597	1246	1092	1642	337	72795
	'38	1008	119	245	1341	327	2458	1332	975	1746	2119	782	2036	410	706	529	764	4073	282	137	968	845	678	1515	258	53270
	'37	1425	216	423	2217	510	4328	1979	1142	4064	2813	1688	4163	513	1272	753	1298	5758	521	324	1667	2045	1451	2878	393	61086
	'36	1496	226	439	2269	453	4553	1442	1021	3556	2454	1622	3957	451	1065	756	1148	4591	523	327	1296	2463	1293	2707	396	64707
	'35	1089	153	329	1594	279	3225	1186	1038	2356	1812	1177	2673	311	699	691	680	2619	363	219	1113	1616	756	2335	284	61651
	Before '35	5581	762	1402	4985	798	11424	3857	3150	8224	4768	4223	8793	1219	3864	2987	2289	10848	1062	617	2690	6228	2653	9744	960	222854
	Unid.*	98	3	17	220	59	208	71	14	66	131	24	1025	33	93	56	473	795	741		112	28	16	113	14	13340
	Total	34168	4477	8956	49233	13406	93506	60543	23178	88047	58175	30968	99172	8511	32979	17700	41259	169364	11058	6319	42858	40414	29145	54437	9339	2149590
F.W.D.	'51		1	2	3	2	17			4		2	8	6	1		2		1		4	7	21			134
	'50		1	2	11	2	54			11	9	4	9		3	1	1	13			4	5	32	4		274
	'49	1			9	7	43		2	4	5	2	7		2	5	3		2		2	31	38	4		248
	'48	2	3		13	2	89	1	15	3	10	6	34	1		13	2	17	2		6	7	48	6		523
	'47	4	9		13	2	135	157	14	21	8	26	81		23	6	3	11	1	2	1	7	72	68	6	1056
	'46	1	1	1	10	6	133	1	28	18	11	4	82		1	25	2	11		5	1	15	38	74	11	719
	'45				6	2	106		1	8	18	1	5	3		4		12		3		4	4	24	5	297
	'44	1	1			4	6		2	2	16	3	1			3		11				1		8	6	121
	'43						3											4				1		1	3	25
	'42	2	1		1		13		2	4		8	11			1		4	1	1	1	8	8	17	1	152
	'41	3				1	35			1	5	3	15			2		7				1	11	34	1	236
	'40	3			2	1	50			2	8	4	3			1		6				3	9	22	3	189
	'39				1		33			3	3	3	2			2	1		1		1	1	10	20	2	130
	'38	2	4		2		21		5	3	8	3	1			1		1			3	5	22			132
	'37	2	2		4	1	20		4	2	10		15			6		10	1		4	4	24	6		215
	'36		2		7		24		4	3	3	1	2			3		2		1	2	2	46	4		214
	'35	1			1		17	2	4		2	1	1			1		1		1	6		31			114
	Before '35	4	4		2		40	3	6		1	8	9			13		2		1	8	2	61	4		300
	Unid.*	4			1	1	4		1				3		2								12			30
	Total	30	29	5	88	31	843	164	88	89	117	79	291	10	32	87	12	119	3	20	3	101	215	987	66	5099

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

TRUCKS IN USE BY MAKES, STATES,

Model	Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont
G.M.C.	'51	1033	322	1902	3437	879	402	93	224	1136	1381	399	2760	1344	814	821	757	643	355	490	752	1445	821	1299	1121	373
	'50	2420	688	2316	5882	1409	815	218	343	1929	2332	1213	4262	2165	1715	1953	2446	2422	711	863	1301	3254	1715	2749	3621	927
	'49	1658	399	1723	4630	1219	484	209	175	1264	1752	854	3017	1780	1534	1702	1688	1583	686	648	876	2041	1326	2082	2579	887
	'48	1778	506	1235	5940	1072	674	278	298	1352	1489	670	3305	2244	1287	1317	1524	1148	712	904	1310	2792	1298	1599	2284	648
	'47	843	299	553	4881	690	458	198	251	853	772	304	2386	1420	728	840	785	463	341	614	997	1660	797	868	1568	322
	'46	624	155	388	2546	325	260	95	95	538	619	229	1119	582	421	449	523	340	252	295	688	982	421	589	769	179
	'45	162	109	120	1229	182	164	43	31	272	198	83	461	307	197	213	148	89	73	150	201	439	165	71	362	87
	'44	79	39	46	423	90	45	23	25	90	87	47	263	195	69	63	81	43	56	66	153	214	122	57	168	57
	'43	39	26	29	490	25	6	4	6	41	24	44	35	75	15	32	32	19	25	30	31	37	23	37	46	30
	'42	524	181	249	1238	487	157	42	119	611	461	270	625	557	297	455	383	348	260	185	358	407	467	478	448	220
	'41	574	241	388	4003	553	600	128	121	557	572	334	1477	965	517	840	728	334	195	365	959	1050	997	469	935	323
	'40	333	141	325	2798	405	449	67	69	398	434	228	1063	791	316	535	491	224	157	253	587	719	647	373	748	217
	'39	165	127	185	2259	272	270	79	61	224	255	169	638	511	222	388	301	140	98	192	446	436	397	167	562	134
	'38	108	70	74	1404	143	180	37	25	147	142	107	293	278	113	356	199	132	58	147	217	180	199	135	260	99
	'37	139	173	160	2370	471	398	88	52	290	178	264	763	717	282	793	528	119	130	188	458	590	484	180	587	181
	'36	37	53	37	1257	187	199	38	28	114	70	130	285	332	126	283	179	48	40	105	237	261	284	71	270	71
	'35	2	13	4	351	28	58	6	11	16	11	25	67	88	11	36	37	10	5	15	75	62	38	7	39	20
	Before '35	19	15	12	539	54	143	13	14	28	14	28	100	111	31	92	62	26	17	34	89	84	106	31	150	27
	Unid.*	54	8	242	11	22	1	16	56	160	146	8	117	39	44	16	273	29	1	40	20	510	3	89	141	10
	Total	10791	3762	9988	45862	8413	5743	1671	2012	9974	10817	5408	23076	14521	8719	11186	11163	8135	4154	5564	9755	17163	10000	11111	16654	4782
HUDSON	'51																									
	'50																									
	'49																									
	'48																									
	'47																									
	'46																									
	'45																									
	'44																									
	'43																									
	'42																									
	'41	12	12	3	119	5	5	3	3	10	7	9	31	28	30	25	12	4	3	4	7	30	12		14	4
	'40	4	1	1	101	5	5	2		9	3	6	20	18	18	10	3	2	3	1	8	10	13	1	8	7
	'39	3	3		46	4	5			8	2	7	4	12	11	9	2	1	4	1	5	15	6		3	4
	'38	1	2	1	42	6	3	2		3	3	8	10	9	2	16	1		3	1	4	8	7		5	2
	'37	8	12	3	21	37	10	2		19	4	5	23	14	19	48	10	1	10	6	13	35	33	1	10	21
	'36	3	5	1	8	22	4	1		14	3	5	19	6	6	15	3	1	12	1	5	26	16	2	6	14
	'35		2		14	5	5				1	1	3	2	3	9	3	1	2		3	2	3	2		5
	Before '35		1		27	15	6	1		3	2	3	13	4	2	31	1	1	10	3	8	6	25		9	8
	Unid.*	47	6	32	609	48	92	10	14	68	39	32	300	177	97	69	57	40	35	73	128	383	83	34	101	28
	Total	78	44	41	967	147	135	21	17	134	64	76	423	270	187	232	92	51	82	90	181	511	179	40	164	93
INTERNATIONAL	'51	607	193	1070	1838	699	612	149	239	848	818	350	3764	2670	1804	972	847	567	326	670	720	1327	1164	618	751	412
	'50	1613	471	1248	3796	1066	818	279	273	1575	2033	637	5491	3264	2800	1956	1888	1582	647	1102	1488	2308	2586	1584	2491	983
	'49	1723	344	1631	3269	1298	1067	248	296	1599	2034	854	6923	3174	3491	2749	2105	2013	624	1033	1670	2468	3116	1570	3017	1149
	'48	2335	492	1400	5324	1812	1175	351	525	1814	2537	943	7637	4068	3508	2697	2563	2014	989	1446	2408	3098	3067	1869	3383	1297
	'47	2045	484	1259	6507	1683	1306	394	500	1852	2133	911	7158	3912	3346	2824	2154	1667	922	1664	2493	2853	2837	1406	3499	1090
	'46	2099	396	1239	4444	974	901	242	269	1673	1947	559	4990	2706	2222	1912	1749	1479	742	812	2015	2153	2506	1416	2660	756
	'45	346	201	217	1471	286	271	62	51	417	377	226	1853	1096	668	417	606	315	258	362	669	654	499	333	735	211
	'44	193	153	125	995	169	61	48	42	188	199	121	878	442	312	334	228	158	117	208	312	295	254	133	340	133
	'43	38	61	37	621	43	9	7	2	52	34	83	89	112	22	49	25	55	16	43	30	34	18	24	39	22
	'42	661	201	400	1421	343	257	53	208	690	861	338	1190	601	575	539	483	537	325	200	497	421	743	629	490	230
	'41	991	375	626	4014	979	1088	226	216	1190	1109	724	4489	2833	2172	2071	1449	949	400	691	1671	1523	2146	907	2340	988
	'40	714	275	412	2983	825	855	139	136	774	823	543	3119	1921	1820	1448	1182	793	293	561	995	1108	1971	621	1625	873
	'39	615	236	396	2243	549	662	142	89	555	714	423	2488	1457	1315	981	887	718	250	538	876	751	1472	653	1283	507
	'38	250	195	232	2099	470	474	89	63	432	321	336	1757	1136	1002	1348	799	473	163	341	802	442	2327	329	944	569
	'37	254	215	146	2417	660	465	105	105	438	279	494	1724	1315	1100	1196	693	344	98	421	390	508	495	286	1020	417
	'36	238	194	159	1836	611	821	87	23	359	348	454	1382	1029	787	993	594	369	134	306	389	430	966	361	733	408
	'35	107	139	75	1324	273	305	35	20	161	132	242	621	605	427	530	268	159	50	119	146	253	852	135	454	383
	Before '35	75	88	31	1018	197	393	47	13	137	120	158	709	559	544	755	268	186	83	172	225	223	979	110	500	485
	Unid.*	70	11	282	12	32	6	44	69	200	216	17	235	83	54	27	283	40	7	129	33	698	26	84	241	2
	Total	14980	4734	10897	47782	12989	11296	2769	3119	15114	16835	8396	58557	32975	27949	23800	18790	14679	6444	11008	17531	21725	27834	12966	26543	10442
KENWORTH	'51		7		78	22						24	3									1	3			14
	'50		4		217	34						49											1		5	27
	'49	2	3	3	104	30						35			1					3					1	24
	'48		5		136	6						33	4		1					3			1			17
	'47	1	4		194	23						32	2		1										2	28
	'46		3	2	170	9						27														28
	'45		11		108	8						26								3						27
	'44		1		62						2	11														
	'43				15							4														1
	'42		1		23	2						9		1		1										6
	'41	1	2	2	68	1					1	20													1	1
	'40				45	5						14									1			1		3
	'39				33	1						10										1			2	7
	'38		1		23	3						10														
	'37	1	1		19						1	16										1		1		3
	'36		2		24	2						2												1		1
	'35		1		10	2						4	1													
	Before '35			1	13	1						5	2													4
	Unid.*			4									2					1		1						
	Total	5	48	12	1362	149					4	321	14	1	2	3		1		9	1	4	5	3	11	189
MACK	'51	69	10	29	129	52	226	9	11	222	108	29	243	126	40	6	33	10	91	131	222	158	33	29	20	17
	'50	218	18	28	246	66	195	19	37	478	192	39	386	146	94	22	37	79	79	134	435	266	98	51	178	10
	'49	121	16	30	130	20	194	20	28	294	116	12	228	71	53	6	49	69	72	101	287	172	88	37	72	6
	'48	137	14	27	263	56	182	25	64	268	124	37	324	109	92	33	71	99	92	174	453	144	94	99	93	24
	'47	109	17	28	463	64	295	32	49	279	173	25	827	136	156	47	120	147	128	214	573	184	134	103	221	14
	'46	84	12	6	124	7	94	9	18	235	115	5	160	49	72	11	22	89	40	52	232	68	75	52	49	2
	'45	48	8	8	133	23	77	12	9	137	86	14	122	59	83	16	10	48	29	61	285	63	71	17	69	2
	'44	27	1	5	92	17	42	5	6	124	49	20	109	21	28	6	4	14	42	53	139	20	20	4	46	2
	'43	2			10	2	2	1	1	9	1	1	17	1			2		2	11	25	4	1		2	1
	'42	36		2	93	13	30	4	14	175	60	3	111	39	14	10	15	51	33	34	128	22	21	9	32	
	'41	30	9	6	382	34	308	21	47	154	74	13	240	88	34	14	52	35	41	139	339	50	118	19	154	3
	'40	21	11	12	356	19	221	13	35	66	60	13	239	51	30	12	32	21	38	68	340	32	67	10	92	2
	'39	11	2	5	254	14	136	13	10	51	25	7	197	35	31	10	26	27	22	77	260	25	52	8	78	1
	'38	6	1	2	167	9	91	8	6	27	15	2	87	10	11	4	13	9	15	39	124	14	38	4	45	
	'37	4	8	1	173	15	61	6	2	22	7	10	105	14	15	5	20	12	8	44	140	15	25	4	38	3
	'36	2	3		98	3	52	5	3	12	5	2	58	13	7	3	16	2	5	30	79	18	27	1	26	1
	'35				39		22	2	3	12	2		29	2	2	4	1	2	9	9	40	4	13		9	
	Before '35	8	14	3	357	15	144	12	8	31	9	18	403	19	20	11	71	28	32	69	231	82	60	5	93	9
	Unid.*	13		4	1	1	6	2	3	11	19		24	3	5		4	2	2	9	17	57	1	2	11	1
	Total	934	144	194	3501	430	2378	296	366	2627	1238	239	3598	983	787	222	601	716	780	1518	4529	1364	1029	447	1323	97

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

AND MODEL YEAR—*continued*

Model	Yr.	Nob.	Nev.	N.H.	N.J.	N.M.	N.Y.	N.C.	N.D.	Ohio	Okla.	Ore.	Pa.	R.I.	S.C.	S.D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
G.M.C.	'51	710	171	172	1049	767	1568	1094	169	1838	934	751	3066	85	595	299	1043	4945	429	113	712	885	436	1126	253	48121
	'50	1345	320	381	2715	1353	4614	2888	516	4104	2382	1918	4127	199	1271	553	2681	11618	748	333	1752	1818	1126	1716	590	101348
	'49	1021	166	244	1740	729	3393	1984	589	2160	1929	1167	3299	132	991	477	2089	8014	505	209	1379	1167	1043	1271	443	70606
	'48	831	157	219	2265	614	4482	1272	598	3451	1312	1527	4543	187	799	579	1995	4509	455	281	1364	1494	1561	1533	293	73852
	'47	615	76	127	1645	343	3017	662	275	2467	873	642	3479	214	392	328	899	2919	242	159	780	798	735	941	141	46255
	'46	230	53	102	593	179	1468	397	124	804	454	407	1736	80	283	171	723	1150	153	68	405	350	398	534	78	24391
	'45	107	16	22	541	72	1091	124	49	417	196	321	611	57	123	90	122	885	64	28	163	302	314	204	58	11104
	'44	53	3	11	181	39	344	68	25	257	128	163	398	13	60	35	66	294	34	20	94	208	98	119	30	6310
	'43	10	6	8	34	9	121	39	10	49	53	144	116	2	38	8	27	173	15	14	25	181	87	21	14	2400
	'42	345	63	40	486	173	1325	369	184	728	530	941	308	47	278	224	469	1515	116	70	316	1049	451	387	121	20333
	'41	396	101	100	1193	287	2276	864	376	1443	761	990	1604	214	275	258	792	1934	248	116	455	1016	608	630	174	34948
	'40	273	72	90	831	176	1754	328	269	935	532	679	1068	126	187	176	594	1120	154	75	336	780	469	585	103	24361
	'39	217	41	58	461	126	1088	210	127	615	347	435	1342	99	127	123	302	829	97	57	238	441	213	411	73	16584
	'38	108	43	34	330	69	710	105	75	326	249	284	470	69	52	38	202	348	80	28	129	294	136	213	38	9508
	'37	240	59	72	547	153	1301	276	149	782	578	511	841	103	135	102	299	720	165	75	237	664	378	648	97	19688
	'36	156	30	28	291	37	606	71	98	313	187	253	507	78	38	80	87	206	59	41	93	350	169	320	25	8814
	'35	32	8	10	78	5	160	5	42	86	24	45	53	20	6	19	13	20	4	5	15	71	30	61	9	1828
	Before '35	79	15	9	196	4	356	4	84	68	37	94	131	36	7	26	31	105	14	9	14	191	26	126	15	3460
	Unid.*	6		7	78	22	63	10	4	29	42	25	359	12	26	11	167	256	250	1	17	6	10	30	6	3473
	Total	6778	1400	1741	15214	6158	29959	10137	3674	20942	11439	11277	27991	1774	5651	3531	12681	39029	3614	1724	8527	12035	8280	10945	2556	326361
HUDSON	'51																									
	'50																									
	'49																									
	'48																									
	'47																									
	'46																									
	'45																									
	'44																									
	'43																									
	'42																									
	'41	8	1	3	17	4	29	12	3	37	11	20	20	3	4	3	4	47	2	5	6	22	16	32	5	706
	'40	5			15	2	13	15	3	18	6	4	14	2	1		4	28	1	3	3	15	7	10	1	427
	'39	3	3	2	15	1	19	6	1	9	2	8	11	1	7	1	2	11	1		1	11	2	7	2	280
	'38	6			19	1	10	3	3	11	2	8	13		3	1	3	15	1	2	2	13	2	5	2	268
	'37	15	2	1	29	6	34	7	9	25	10	39	16	6	3	1	3	23	11	4	2	42	11	25	3	694
	'36	1	2	1	5	2	27	8	1	8	1	23	19	2	4	4	3	12	3		3	25	12	11	2	371
	'35	2	1		4		8	2	2	2		6	1		2	2	3	1				12		6	2	123
	Before '35	10	2	1	8	1	43	2	5	8	3	10	5	4	1	3	1	6		2	3	17	7	34	6	363
	Unid.*	35	10	13	311	10	341	85	22	312	41	73	288	28	36	16	69	192	15	16	80	109	58	147	15	4904
	Total	87	21	21	423	29	524	140	49	429	79	190	387	45	59	33	92	339	35	32	100	266	115	276	36	8134
INTERNATIONAL	'51	741	93	181	1125	319	2879	793	301	2589	774	805	3906	132	398	482	707	2969	272	123	675	914	390	1733	210	47219
	'50	1892	122	382	2088	494	4435	1750	808	4503	1844	1508	5908	305	862	1016	1878	6208	380	333	1462	1351	850	2511	429	66218
	'49	2099	151	297	2487	539	6224	2144	1578	4901	2321	1245	4442	422	872	1300	2108	6352	584	329	1467	1691	1224	2544	648	97441
	'48	2163	177	335	2975	672	6469	2318	1711	6014	2991	1958	6966	474	1033	1742	2484	7333	603	425	1951	2186	1379	3244	847	116962
	'47	1972	173	374	2984	609	6162	2164	1206	5373	2800	1587	7796	471	838	1239	2172	7238	536	368	1997	1969	1524	3027	565	111945
	'46	1243	137	276	1919	417	4428	1805	909	4105	1650	1060	4299	358	602	790	1941	4770	442	304	1449	1448	954	2073	380	80013
	'45	418	42	77	760	116	1530	349	212	1240	671	838	1593	143	199	253	339	1649	120	103	407	843	478	776	141	25723
	'44	312	30	34	268	72	903	156	95	474	454	692	1143	65	79	167	154	778	88	39	148	342	206	389	66	13269
	'43	23	10	3	71	34	123	40	16	42	134	321	207	4	49	7	63	186	24	6	23	262	30	38	14	3258
	'42	423	103	60	629	148	1271	550	268	906	619	880	613	117	286	230	781	1280	185	63	293	1138	345	571	94	24804
	'41	1295	148	205	1948	407	4324	1096	1237	3349	1971	1298	4082	324	431	923	1143	3790	417	190	905	1782	1000	1873	350	70599
	'40	1012	99	151	1304	264	3424	621	1035	2132	1181	954	2284	237	384	690	881	2252	283	167	674	1240	751	1643	312	50362
	'39	769	85	133	984	190	2418	585	651	1483	606	573	2788	164	287	573	809	1506	209	164	432	980	804	1006	236	39127
	'38	636	59	72	785	177	1859	400	722	1145	904	500	1526	67	193	413	423	1397	188	81	273	865	366	843	179	31148
	'37	659	62	61	920	157	1663	512	569	1411	1020	608	1833	80	213	421	385	1513	221	85	325	1054	515	930	203	30965
	'36	640	99	69	612	128	1497	277	425	1118	757	548	1415	91	192	278	450	1068	199	78	221	819	410	812	195	26148
	'35	349	28	47	327	67	785	134	380	585	415	312	441	30	82	254	166	514	117	52	151	479	201	524	109	14242
	Before '35	581	22	62	426	43	1111	69	1056	902	394	211	773	39	47	410	117	408	58	37	107	470	140	521	63	15600
	Unid.*	25	4	8	158	21	143	16	13	41	88	14	839	28	20	19	302	259	298		20	1	5	52	7	5249
	Total	17012	1599	2826	22770	4861	51179	15779	13191	41913	21782	15913	52734	3549	6972	11177	17323	51441	5192	2916	12900	19743	11072	24970	4771	891435
KENWORTH	'51	16	3			4					10	48				2	2	7	7			28			6	235
	'50	31	7			11						88				21	1	16	6			96			6	622
	'49		3		1	7					11	61				11		22				60		1	3	398
	'48		8			6						116				8		11	1			72	1	3	10	430
	'47	1	6			3						72						6	2			117	2		8	662
	'46	3	8			9						65						11	1			55			4	383
	'45		2		1	2			1			85						4				46			6	329
	'44		6			4						18					2		1			23				130
	'43											1										6				27
	'42		4							1		12					1					12				73
	'41		6			1				1	1	29					2	1				43		1		202
	'40		3			1						33						2				38				146
	'39		1							4	2	17							1			17				91
	'38		3	1				1		1		11							1			29			1	67
	'37		1					1			1	4						2				24				76
	'36		1			1				1		7						1				31				74
	'35											9						1				20		1		48
	Before '35									24		38						2		1	1	129				219
	Unid.*									5		1														14
	Total	51	59	1	2	49		2	1	37	25	730				39	9	86	20	1	1	829	1	6	44	4134
MACK	'51	24	5	62	419	41	815	249	1	318	15	172	949	20	94	2	73	135	11	7	119	73	68	48	12	5779
	'50	23	23	102	501	61	1310	631	8	540	52	203	867	52	164	2	176	326	10	9	186	148	95	79	7	9085
	'49	12	2	64	358	28	1199	337	6	245	25	114	679	60	89	4	120	189	16	13	90	92	72	78	6	6156
	'48	67	2	48	577	26	1454	421	37	352	80	124	1141	84	110	19	139	316	28	16	148	114	215	100	10	9854
	'47	110	4	105	747	48	2335	326	37	647	89	153	1388	57	111	41	126	382	19	55	119	198	211	136	24	11679
	'46	31	2	44	254	22	703	193	6	151	21	51	318	27	53	5	99	93	6	20	40	76	47	26	2	3918
	'45	25	1	27	227	29	627	184	2	205	28	61	431	32	52	13	31	161	6	28	61	83	93	34	6	4188
	'44	5	1	20	216	9	389	80	2	104	29	26	331	24	47		23	98	6	9	29	36	60	20	11	2475
	'43	1		1	33	1	97	3	2	12		6	87		4			4			2	16	2	7		372
	'42	3		7	119	5	293	57		79	11	53	221	23	46		23	43	1	6	25	31	39	33	4	2054
	'41	9	7	52	663	9	1725	95	6	228	39	63	773	96	80	3	50	125	19	18	81	145	86	67	6	6992
	'40	5	8	21	538	6	1313	68	1	171	23	48	393	67	20	1	45	62	13	18	34	108	22	48	1	4907
	'39	6	2	20	381	3	1066	37	1	121	10	42	494	41	15	6	19	42	9	11	38	56	21	28		3808
	'38	3	2	16	239	1	734	14	3	51	11	23	175	18	7	1	7	24	4	5	24	25	19	30	1	2190
	'37	8	3	1	277	7	679	16	3	46	13	41	193	25	9		6	23	4	2	19	43	12	32	5	2213
	'36	1	1	7	187	1	453	3	3	34	6	19	135	14	4	3	4	9	3		8	37	4	11		1435
	'35	4		2	79		284	3		8	2	3	29	14	1		1	2		3	1	7		4	2	649
	Before '35	12	4	10	532	4	2758	9	6	16	6	40	220	47	6	3	13	30	7	5	16	80	6	26	2	5588
	Unid.*	2		2	28		31			4	1		167	17			17	8	6		2	2		3		540
	Total	362	68	611	6532	299	18469	2702	123	3320	429	1232	941	660	985	103	964	2980	155	215	1029	1323	1039	788	109	82548

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

• TOTAL REGISTRATIONS •

TRUCKS IN USE BY MAKES, STATES,

Model Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
PLYMOUTH																									
'51																									
'50																									
'49																									
'48																									
'47																									
'46																									
'45																									
'44																									
'43																									
'42	14	1	3	57	3	4	5	3	5	11	1	4	9	3	4	1	8	3	5	8	1	3	11	2	2
'41	104	73	85	747	106	165	43	22	232	97	82	289	312	146	184	142	98	66	83	250	254	163	89	228	45
'40	121	74	89	873	138	150	38	18	206	99	46	295	260	171	167	139	94	59	71	204	209	185	80	251	54
'39	79	60	64	650	148	112	37	12	155	63	56	275	227	183	128	119	60	48	77	164	190	153	62	183	46
'38	51	31	48	433	100	74	23	4	144	43	36	167	155	67	142	65	99	25	52	66	90	101	43	104	48
'37	70	88	73	894	184	127	38	3	223	83	79	337	329	180	286	197	75	51	80	131	184	257	96	202	62
'36	47	22	25	220	60	58	17	2	131	78	19	41	87	31	91	40	55	17	28	64	49	67	53	89	20
'35	27	13	16	396	45	35	4	1	77	33	11	15	79	5	50	12	20	15	6	21	17	43	28	48	20
Before '35	30	49	28	616	99	109	11	2	151	48	21	25	124	10	91	47	27	29	17	35	39	114	26	103	30
Unid.*	21		19	2	1		9	5	11	20	2	9	14	4	25	10	3		20	6	61	4	25	23	7
Total	564	411	449	5090	884	834	225	72	1335	575	333	1457	1596	820	1166	772	499	313	439	969	1094	1090	513	1203	332
PONTIAC																									
'51	19	3	5	66	8	13	2	8	11	5	8	14	17	7	14	13	5	5	3	19	61	12	4	2	6
'50	31	5	10	251	12	30	3	13	35	16	14	66	31	27	33	30	17	12	19	67	86	38	15	16	7
'49	30	12	4	247	6	28	3	12	15	19	4	52	33	12	31	14	17	22	17	29	49	16	7	7	7
'48																									
'47																									
'46																									
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'44																									
'43																									
'42																									
'41																									
'40																									
'39																									
'38																									
'37																									
'36																									
'35																									
Before '35																									
Unid.*	10		7	1	10	5	1		1	14		2	9	3	20	12	2	5	7	5	13	12	13	4	5
Total	90	20	26	585	36	76	9	33	62	54	26	154	90	49	98	69	41	44	46	120	209	78	39	31	26
REO																									
'51	30	6	22	50	33	49	6	19	126	33	6	160	120	12	7	16	4	1	48	70	174	23	1	24	24
'50	28	6	42	115	17	45	4	29	104	57	20	213	107	55	32	32	21	4	71	134	236	25	10	68	22
'49	44	11	67	118	33	32	13	17	92	81	40	222	171	72	77	58	41	24	64	110	90	47	27	104	47
'48	228	95	208	239	148	96	30	45	145	227	159	849	308	391	301	367	110	139	145	195	510	202	127	271	167
'47	171	95	66	468	100	77	34	45	194	190	80	514	305	235	157	160	118	105	167	244	538	169	94	187	56
'46	268	48	37	474	95	113	26	72	249	198	57	488	279	183	134	195	96	31	113	354	527	99	71	187	26
'45	30	6	2	145	24	9	5	13	54	22	7	257	118	67	28	100	21	8	39	94	156	91	9	34	6
'44	2	1	16	49	3	2		7	21	3	2	8	14		1	4	6	1	5	17	17	5	1	1	1
'43	1		1	44	2	1		9	2	1	1	2	3	1	1	6	1	1		1	5			1	1
'42	15	7	3	165	10	5	2	29	58	12	15	54	20	3	16	9	32	7	12	27	29	13	8	14	
'41	2	1	3	135	12	21	4	1	23	3	2	91	35	9	14	17	9	2	25	68	55	43	7	30	1
'40	5		3	31	2	3	2		3	1	1	24	5	2	5	4	1	1	4	16	12	4	4	20	
'39				67	5	8	3		16	3		22	9	5	12	9	1		6	17	17	9	1	23	2
'38		6	1	204	18	19	5	1	23	2	4	59	35	26	32	21	3	3	20	52	38	39	1	49	4
'37	2	7	3	185	37	62	5		40	7	13	57	28	23	35	32	4	6	21	55	58	39	2	24	5
'36	3	5	1	106	25	44	3		31	9	8	19	21	21	8	14	2	6	15	48	37	28	1	12	9
'35	1	4	3	115	11	55	3	2	17	1	10	22	14	7	11	8	1	5	5	30	34	23	1	15	12
Before '35	1	4	3	452	32	171	12	4	24	4	16	100	39	66	39	41	8	53	50	127	76	99	3	51	31
Unid.*			12	5	7	4	2	3	9	13	1	14	3	12	3	7	1	1	30	3	142	13	2	18	
Total	831	301	493	3167	614	826	159	299	1232	867	440	3175	1634	1100	911	1099	481	393	840	1662	2749	978	371	1133	414
STERLING																									
'51				51		5						13			1			1	1	24					
'50		6		84		16					1	5							2	92	2				
'49		2		59		1		5				1						1	1	50					
'48		5		64	1	2		2				14						9	2	94	1				1
'47		7		124		6					2	17						8	4	133	4				2
'46				111		19						9						14	4	88					3
'45		2		111	1	6					8	16						6	2	69	1				1
'44		1		121	3														1	27	2				
'43				8								1			1				1	6					
'42				39	4	1		2			1	14	1	1				6	1	20	9	1			
'41		3		103	1	3		6				11							1	73	2				1
'40		2		85		3		4		1		3						3	1	59	1				
'39		5		52	5	2		1				1								39					1
'38		4		46	2															22					
'37		1		69								2							1	27					
'36				58		1						6	2						1	16		1			
'35				36																8	1				
Before '35		1		115		5		5				47	1		1				1	26	1			2	
Unid.*								1				1	1				2		7		1			1	
Total		40		1338	17	67		26		1	12	161	5	1	3	2		48	32	873	25	2		3	9
STUDEBAKER																									
'51	432	127	606	825	321	196	42	12	796	592	189	965	982	455	319	364	336	179	163	310	470	589	346	341	186
'50	925	320	894	2065	635	336	106	32	1268	1133	400	1638	1417	883	705	654	992	206	303	621	946	1226	862	1136	414
'49	1552	697	1630	3879	1269	685	139	110	1765	1984	1014	3953	2903	2151	1971	1377	1691	457	445	1233	2288	2595	1468	2377	934
'48	383	203	325	3193	356	296	92	44	529	484	339	1220	813	509	575	654	992	412	213	386	478	713	640	343	567	273
'47	593	296	477	3455	455	446	103	87	851	759	450	1893	1295	997	925	680	686	337	411	810	1290	848	527	940	404
'46	318	169	280	2262	283	322	66	41	573	417	275	1061	1191	542	555	341	331	175	241	534	878	558	241	545	270
'45	20	22	13	181	31	26	7	1	25	21	34	283	136	105	46	80	16	14	31	36	116	196	32	95	44
'44	3	6	2	76	10	3	2	1	3	4	266	61	29	28	4	52	5		6	4	24	50	8	11	76
'43	5	2		53		2	1		8	5	6	16	20	6	7	9	3	7	1	5	10	7	7	4	52
'42	38	14	9	140	52	6	3	1	56	45	38	81	73	59	93	49	26	10	8	22	51	87	37	48	42
'41	56	38	32	393	72	70	14	9	100	58	76	196	283	80	102	83	45	20	42	73	172	93	24	105	84
'40	20	4	15	145	13	16	2	4	42	14	21	76	90	14	12	26	16	3	7	20	60	26	18	34	9
'39	11	14	4	301	28	17	4		20	6	38	54	63	40	29	15	16	6	12	66	29	37	2	19	28
'38	5	4	5	238	20	14	2		12	6	26	59	47	33	11	15	2	9	7	21	15	34		15	32
'37	6	24	12	570	52	28	6		18	20	51	63	112	68	77	47	10	17	20	36	63	78	13	38	38
'36	5	7	2	226	14	12	2	3	7	4	14	69	55	26	15	10	4	3	6	14	14	41	4	22	13
'35	2	2	3	109	5	3			4	3	6	8	33	3	9	13	3	1	3	7	5	23	1	9	6
Before '35	8	19	5	393	47	67	4		17	15	12	36	69	22	47	42	3	26	16	23	14	100	2	29	18
Unid.*	14	3	78	9	6	2	3	20	60	52	3	37	6	15	8	101	9	1	36	4	139	3	21	75	
Total	4396	1971	4391	18513	3671	2546	598	365	6154	5622	3254	11783	9617	6028	5501	4330	4606	1686	2144	4317	7296	7231	3956	6410	2923

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

AND MODEL YEAR—*continued*

Model	Yr.	Nab.	Nev.	N.H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
PLYMOUTH	'51																									
	'50																									
	'49																									
	'48																									
	'47																									
	'46																									
	'45																									
	'44																									
	'43																									
	'42	2	1	2	21	2	9	10	2	12	6	7	70	6	6		9	8			13	2	6	6	1	380
	'41	65	26	36	368	53	470	199	66	388	124	119	531	51	117	39	153	449	38	26	147	167	191	235	24	6239
	'40	60	26	42	258	65	385	160	70	388	122	144	517	59	99	62	108	401	38	31	175	177	170	246	19	7919
	'39	69	12	30	240	48	381	116	49	299	110	121	626	43	64	47	91	345	41	24	101	121	186	231	23	6739
	'38	56	12	15	187	49	281	61	24	212	86	73	369	15	42	31	44	256	18	10	69	85	124	191	18	4549
	'37	86	28	30	255	82	430	191	60	445	158	181	562	38	88	50	108	399	51	21	131	211	242	432	33	6659
	'36	34	10	13	103	10	128	42	7	95	43	46	233	12	38	24	62	111	12	9	28	66	59	137	9	2702
	'35	26	2	5	41	1	38	27	5	62	22	33	45	5	13	23	33	69	5	3	25	56	26	85	8	1695
Before '35		70	9	24	74	5	114	44	15	89	39	74	106	21	29	31	34	115	6	15	29	139	51	161	9	3359
Unid.*		9	1	1	17	6	11	6	2	13	23	4	119		5	3	12	32	3	4	12	3	18	4	3	610
Total		499	129	198	1585	323	2295	878	320	2003	734	802	3204	250	501	310	629	2187	210	144	731	1048	1045	1729	147	44877
PONTIAC	'51	13	1	8	44	1	20	17	3	35	19	6	96		3	3	5	23	4		19	12	7	14	2	845
	'50	13	1	13	106	2	98	33	4	75	48	13	168	12	18	6	21	65	6	5	34	30	24	33	6	1740
	'49	10	3	11	144	2	175	25	16	79	36	6	77	21	9	4	9	28	3	4	43	21	30	15	1	1461
	'48																									
	'47																									
	'46																									
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	'38																									
	'37																									
	'36																									
	'35																									
Before '35																										
Unid.*		10	2			6	6	5	4	25	12	6	16		4	3	7	18	5	2	3	10	14	11	2	332
Total		46	7	32	294	11	299	80	27	214	113	31	317	33	34	18	38	134	18	11	99	73	75	73	11	4178
REO	'51	20		11	84	7	339	19	2	227	18	20	249		5	9	2	86	7	6	15	16	19	39	2	2284
	'50	13		40	79	1	356	27		208	45	15	438	12	6	9	18	77	15	18	33	13	24	116	3	3061
	'49	26	1	14	92	6	322	62	4	178	64	31	330	18	9	17	66	131	21	17	29	62	53	92	15	3386
	'48	113	8	34	246	28	695	254	88	671	271	119	619	42	115	100	228	452	49	49	103	158	256	295	42	10647
	'47	102	13	38	241	26	700	205	46	583	177	116	618	40	132	54	131	433	6	55	157	137	177	244	10	9215
	'46	91	8	62	139	27	533	253	41	358	125	104	602	13	179	52	138	250	9	39	137	106	116	230	17	8109
	'45	17	2	16	47	9	122	23	29	129	39	40	156	2	21	18	10	38	7	10	32	67	58	42	16	2296
	'44		2	3	10	3	15	2	2	31	7	41	40	2	2	1		12		1	2	29	11	4		409
	'43			1	5	2	7	2	3	1	4	16	9					5	1			4	1	1	1	148
	'42	4	7	10	38		56	8	2	25	6	123	38	4	3	2	5	21	4	3	13	89	16	18	4	1043
	'41	2	4	13	42	2	75	4	3	99	4	61	133	6	3	3	2	21		2	12	27	34	30	3	1183
	'40	1		3	7	1	9	1	1	3	4	3	35	2	1		3	5		1	2	1	6	11		282
	'39	5			16		35	2	1	23	6	7	38	2		2	3	7	4	1		3	13	15	4	421
	'38	13	1	2	39	4	87	5	2	68	22	25	110	9	4	7	8	16	2	2	4	26	22	42	3	1197
	'37	11	4	3	26	5	87	6	5	76	22	29	119	13	3	17	7	15	4	6	11	33	36	58	5	1353
	'36	7	7	4	24		47		9	29	5	18	73	10	2	8	3	10		6	3	22	11	27	2	798
	'35	7	4	2	21	2	112		10	25	5	16	29	10	4	6	2	9	2	3	2	42	6	27	2	780
Before '35		25	2	7	136	9	232	3	19	96	22	50	196	38	7	23	7	36	6	12	5	95	27	109	5	2677
Unid.*		2			18	1	23		2	5	5		73	2		2	5	13	7		4	1		12	1	482
Total		461	63	263	1311	133	3851	893	266	2797	851	834	4111	223	495	327	643	1637	148	231	564	971	868	1431	135	49701
STERLING	'51		1		8	1	12	3			2	12	17	4										3		159
	'50		4		10		57	7				10	35	2								9		4		348
	'49		1		4		33	4				6	17				1					3		1		190
	'48		2		11		35	3		1		32	45	6								21		10		382
	'47		4	7	16		65					17	58	10								21	1	43		548
	'46		4	19	9		69			1		20	61	8			3					26	1	15		480
	'45		1	5	9		29					28	41	6							1	27	1	7		379
	'44				3		8					29	19	1								21	1	8	1	244
	'43		1	1	6		1					3	9									2				40
	'42		1	2	3		14	3		1		8	33	7	1	1	2					8	1	8	1	196
	'41	1	1	3	4		30	1				8	29	6			2		1			22	2	14		329
	'40			3	1		22					8	14	5								7	1	7		227
	'39			4	9		34					8	17	8								7	2	4		203
	'38				6		20						5	1												109
	'37		1		5		24		1				9							1				11		151
	'36		1		6		17			1			8											12		130
	'35				2		13							1				1						5		67
Before '35			2		11		49		1		1	5	16	1								5		93		389
Unid.*							2					1	12	1			1							5		36
Total		1	24	44	125	1	534	21	2	4	3	192	445	68	1	1	9	1	2		1	179	10	250	2	4585
STUDEBAKER	'51	317	49	70	369	317	594	980	126	898	279	249	1070	43	262	143	339	1776	109	31	238	340	141	468	71	19020
	'50	538	95	158	683	458	1308	1166	282	1426	982	478	1903	106	501	335	1005	3441	193	81	759	550	338	829	198	37914
	'49	1583	238	138	1430	772	3236	2352	856	3274	1407	1207	2084	241	954	727	1832	5638	324	223	1003	1470	849	1674	470	75051
	'48	389	79	103	550	153	1170	563	328	1000	887	459	2835	74	207	274	467	1387	138	102	865	531	322	681	115	27446
	'47	629	97	139	889	240	1925	1063	439	1538	811	729	2524	161	355	367	690	2213	265	119	776	866	553	699	176	38278
	'46	337	64	50	618	162	1290	776	240	1228	456	529	1419	86	326	232	391	1450	161	59	478	637	300	430	69	24270
	'45	41	3	8	41	15	99	36	69	194	43	80	206	7	11	61	25	105	16	10	25	60	56	117	14	2933
	'44	4	1		4	4	20	17	28	20	6	297	69	3	5	1	3	23	5	3	5	220	19	21	15	1525
	'43	4			16	1	44	7	2	12	9	18	14		2	1	1	10		3	13	67	20	5	3	510
	'42	31	6	3	33	16	83	57	52	62	46	43	66	6	19	12	43	86	19		33	58	16	32	18	1917
	'41	53	18	20	102	24	371	112	64	290	75	110	242	16	49	49	92	265	46	15	100	196	79	91	27	4859
	'40	8	3	3	37	5	61	15	7	48	28	25	49	6	5	10	24	92	11	1	15	32	11	38	3	1243
	'39	16	3	2	26	7	241	8	7	60	11	47	71	11	2	12	9	92	25	3	8	70	21	32	6	1608
	'38	13	7	2	19	4	47	1	7	34	13	24	68	4	2	5	9	40	19	5	3	45	17	33	5	1058
	'37	20	23	11	50	8	115	14	17	98	31	102	132	7	9	17	11	70	35	4	8	148	35	68	11	2510
	'36	5	3		23	1	45	2	8	32	6	30	49	4	3	2	4	19	3	1	3	47	7	33		921
	'35	3	1	3	7		27	2	7	21	3	12	9	4	1	2	1	9	1			12	4	18	2	410
Before '35		37	8	12	59	4	97	4	25	41	8	34	76	6	6	33	7	45	7	4	8	103	13	73	3	1745
Unid.*		11		3	13	4	27	1	3	9	14	2	140		8	4	88	74	92		4	2		8	2	1213
Total		4039	695	725	4976	2197	10780	6821	2589	10292	5075	4475	13015	785	2727	2288	5040	17105	1868	664	4342	5478	2801	5350	1228	244431

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

● TOTAL REGISTRATIONS ●

TRUCKS IN USE BY MAKES, STATES,

	Model Yr.	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
WHITE	'51	91	34	70	146	31	61	13	26	149	92	18	531	402	96	56	46	27	44	132	221	157	71	29	130	35
	'50	235	32	78	314	66	133	20	31	349	258	44	752	566	155	102	104	120	48	185	451	312	96	61	405	16
	'49	156	26	27	219	45	92	21	17	173	138	16	496	271	80	92	112	132	28	127	232	228	56	40	173	9
	'48	147	56	72	358	89	94	26	47	231	170	49	781	385	163	109	121	127	33	204	268	392	211	73	235	46
	'47	179	62	52	557	107	151	33	44	199	179	37	961	350	137	174	148	149	77	226	402	326	238	80	363	59
	'46	187	33	48	506	51	161	23	56	219	202	11	478	280	101	102	109	103	45	145	440	178	195	81	272	32
	'45	61	20	32	447	66	83	13	23	113	74	19	346	216	78	71	66	64	15	93	295	174	127	25	183	13
	'44	20	14	6	273	30	22	6	8	43	38	8	143	60	23	35	32	32	3	47	169	36	51	8	93	* 9
	'43	3	4	3	168	11	5	1	6	10	12	5	89	27	9	21	18	7	4	9	32	25	15	3	28	10
	'42	37	10	6	288	73	21	5	29	113	58	14	157	48	32	40	48	70	11	26	122	34	55	25	55	15
	'41	39	24	9	965	45	130	17	74	84	100	25	405	152	16	34	66	39	17	94	321	77	119	22	221	18
	'40	18	12	4	305	20	54	7	23	38	49	11	173	67	7	16	42	21	5	47	131	32	59	12	100	4
	'39	11	12	2	135	27	56	6	19	16	21	4	143	20	1	4	51	9	7	43	101	27	50	5	63	4
	'38	4	6	1	177	13	46	5	24	14	23	6	88	34	4	10	24	16	2	26	71	11	39	2	51	13
	'37	21	17	2	227	27	57	6	3	27	31	1	168	43	5	9	31	13	6	39	83	23	48	8	68	5
	'36	12	2	2	167	17	41	6	11	23	20	3	149	27	4	6	64	14	4	39	84	20	59	2	64	13
	'35	3	2		105	7	14	1	3	10	38	2	84	11		4	8	10	3	8	40	4	28	3	12	2
	Before '35	9	10	3	407	61	49	9	20	34	28	16	31	25	12	13	28	15	10	32	113	26	106	6	49	16
	Unid.*	6		10	1	5	2	2	21	32	27	1	27	24	6	1	6	22		29	4	123	1	6	23	
	Total	1241	389	427	5279	790	1281	217	487	1877	1559	299	5644	3008	929	900	1147	990	382	1561	3580	2205	1626	510	2561	319
WILLYS	'51	332	86	262	768	432	227	18	61	604	234	189	491	397	148	226	512	218	211	121	233	320	429	237	237	446
	'50	695	269	273	1489	637	245	54	54	801	344	319	450	461	229	317	822	634	343	136	272	410	496	351	753	850
	'49	688	171	495	1463	732	209	99	59	706	481	355	620	576	494	483	1257	922	297	150	280	552	521	483	1029	856
	'48	955	415	929	3414	1544	491	234	109	913	1236	408	1359	1457	1110	944	2670	1267	614	299	641	1693	1438	839	1905	1353
	'47	711	321	479	2308	872	148	117	22	381	827	192	396	674	698	491	1515	817	541	142	248	948	908	493	1333	963
	'46	354	413	304	3993	544	151	93	24	384	864	96	170	803	394	450	795	429	376	98	203	1093	617	285	779	358
	'45	40	27	19	438	81	13	7	21	39	145	7	29	93	24	85	148	30	54	11	32	73	37	35	66	36
	'44	7	14	10	311	33	8	3	6	7	85	6	7	10	3	8	18	18	16	1	12	7	19	11	25	6
	'43	23	35	18	738	58	2	3	4	11	134	12	4	15	11	35	75	20	17	1	8	11	22	8	48	28
	'42	98	54	63	947	95	7	10	35	57	544	23	19	38	32	51	151	90	34	6	28	37	34	77	131	81
	'41	74	24	31	704	26	9	13	8	113	92	15	27	42	22	20	112	44	15	12	38	60	34	40	166	19
	'40	54	26	32	490	26	16	9	2	130	48	15	48	76	17	28	102	49	29	7	31	73	33	23	135	17
	'39	9	15	3	252	12	9	6	1	52	7	3	9	36	6	11	45	4	16	2	14	18	6	6	51	5
	'38	15	6	9	321	15	15	7		50	21	4	26	44	17	42	45	25	6	1	27	32	22	7	61	7
	'37	7	7	5	949	9	5	2		35	10	4	6	44	5	11	44	15	5	1	14	21	7	11	124	3
	'36	3	11	3	249	6	5	2		37	11	2	4	23	1	2	6	4	2		2	11	4	3	10	2
	'35		9		210	4	2	1		23	4	4		1		2	5	4	1			4	4	1	6	2
	Before '35	3	6	3	91	24	16	5	2	23	6	2	27	30	14	21	22	8	7	6	7	14	31	2	64	6
	Unid.*	23	5	83	42	6	2	3	6	70	90	4	15	9	9	2	85	8	4	29	5	101	6	43	39	4
	Total	4091	1914	3011	19175	5126	1581	688	414	4438	4885	1659	3709	4928	3238	3209	8453	4808	2580	1023	2981	5476	4571	2955	6880	5074
MISC.	'51	269	15	144	1443	15	128		6	59	110	13	146	112	20	45	68	70	12	25	74	126	64	42	31	68
	'50	322	49	217	4509	46	158	6	16	95	276	22	323	178	45	61	96	164	11	34	156	256	119	91	110	70
	'49	298	37	178	3504	44	139	47	15	82	271	31	319	109	56	66	135	150	28	45	154	294	138	87	108	48
	'48	188	60	153	2474	46	206	54	40	114	258	36	535	120	49	37	194	129	35	54	145	234	118	86	130	58
	'47	124	42	98	2212	72	181	61	23	90	203	27	547	136	59	53	115	96	44	60	260	258	118	53	130	32
	'46	106	55	107	1473	39	183	41	10	82	269	14	505	99	43	45	106	96	47	26	316	138	92	63	106	33
	'45	11	18	33	551	50	81	13	5	19	41	6	185	37	18	28	23	38	37	2	71	47	30	15	27	6
	'44	1	4	8	311	11	17	7		5	16	5	76	5	12	6	6	15	16	3	45	7	12	7	19	15
	'43		3	3	199	11	18	4	4	6	6	23	4	10	9	5	11	1	2	15	2	8	7	12		
	'42	67	17	52	435	17	52	10	16	28	76	24	160	22	33	17	34	35	21	4	79	25	28	35	20	8
	'41	48	20	76	1290	33	91	24	9	50	127	16	298	51	34	23	95	58	10	14	121	91	72	24	58	12
	'40	38	15	35	1110	25	62	21	2	53	112	11	237	47	29	24	93	38	10	11	116	57	45	20	48	12
	'39	31	16	45	620	17	48	17	4	64	69	8	145	31	19	18	60	17	19	9	55	35	56	24	40	8
	'38	23	4	16	452	22	40	17	2	49	40	6	127	29	31	32	68	26	14	13	64	43	52	24	32	14
	'37	29	12	46	843	37	96	21	3	80	69	25	214	61	47	50	95	43	26	17	116	73	120	26	45	20
	'36	34	13	27	582	39	63	20	1	47	65	20	208	72	45	52	81	25	36	18	139	48	92	21	40	19
	'35	11	16	24	435	27	22	6	2	33	37	19	75	41	31	46	46	17	17	8	88	25	61	17	37	11
	Before '35	43	50	79	2080	272	456	106	8	138	154	99	719	212	200	293	175	82	227	96	194	131	552	39	169	142
	Unid.*	47	39	254	654	94	96	26	13	252	110	41	187	69	120	8	308	119	15	48	161	173	16	132	95	19
	Total	1664	483	1593	25997	917	2145	503	179	1316	2321	428	5049	1435	904	925	1806	1244	624	488	2474	2063	1790	815	1257	568
	Total All Makes	157436	53431	134876	565382	123039	93131	25019	23093	178099	186388	66300	365940	224609	194330	192998	163381	138264	80694	91377	162733	266379	199940	139432	240938	78266

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

Passenger Cars in Use by Makes and by Model Year*

(As of July 1, 1951)

Makes	1951	1950	1949	1948	1947	1946	1945-'42	1941	1940	1939	1938	1937	1936	1935	Prior to 1935	Year Unknown	Total July 1, 1951
Buick	177,132	619,503	307,997	200,691	237,150	133,924	76,499	321,593	240,191	153,468	106,667	129,017	69,178	15,521	38,678	6,103	2,835,212
Cadillac	49,353	95,037	85,047	48,379	52,884	24,930	13,506	56,542	11,944	9,972	6,177	7,311	4,053	834	3,179	1,034	470,162
Chevrolet	629,936	1,303,368	1,002,762	663,068	640,572	384,154	224,104	937,139	701,209	499,673	356,351	539,725	430,679	173,250	322,960	21,622	8,852,571
Chrysler	64,192	156,617	133,315	100,953	92,158	66,502	28,751	136,617	76,986	52,439	31,581	52,199	22,268	10,034	19,567	2,347	1,046,424
Crosley	3,189	6,372	8,102	23,439	14,301	1,473	557	599	194	242						355	58,823
De Soto	42,798	120,225	103,294	77,953	70,446	54,563	20,114	84,498	56,334	42,397	25,065	43,826	16,861	6,868	10,595	1,690	777,441
Dodge	119,100	310,826	281,202	200,231	209,733	141,746	59,112	205,822	168,946	145,959	76,187	172,904	122,774	49,997	82,446	5,979	2,322,864
Ford	509,331	1,142,927	1,030,327	241,371	395,773	408,574	142,173	613,179	467,296	341,322	210,921	391,841	356,704	223,433	742,905	19,978	7,237,737
Frazer	9,228	2,333	21,437	45,309	58,810											1,701	135,818
Graham								676	897	1,944	1,307	4,226	2,400	1,548	3,219	202	16,417
Hudson	67,079	114,851	144,819	99,562	72,826	71,469	29,256	69,571	58,147	28,504	18,634	39,306	22,749	9,174	12,468	2,143	980,578
Hupmobile								136	54	404	490	74	384	916	3,506	132	6,096
Kaiser	135,791	20,845	70,813	85,589	58,825											3,123	374,986
La Salle									18,654	15,983	6,956	15,428	4,358	2,152	2,394	743	68,668
Lincoln	15,338	26,745	64,272	8,247	17,973	12,711	5,179	15,849	14,526	11,807	7,385	6,669	3,199	256	1,062	613	213,650
Mercury	157,916	276,229	273,472	48,354	79,274	72,895	19,487	79,363	65,926	45,426						4,196	1,125,548
Nash	97,368	158,901	119,560	97,259	87,743	80,509	24,972	67,731	46,342	32,137	19,998	37,930	15,945	4,885	9,819	1,960	902,939
Oldsmobile	122,271	374,106	288,322	158,973	173,443	104,363	58,483	231,987	162,017	101,285	62,375	118,435	83,136	35,648	21,483	5,109	2,079,288
Packard	85,421	69,806	82,508	70,254	38,244	29,886	25,315	57,162	69,696	30,737	27,146	51,236	18,031	6,392	6,572	1,742	648,153
Plymouth	268,469	538,965	538,397	327,182	316,221	219,965	115,273	463,952	351,970	303,336	179,911	312,267	225,303	105,808	129,970	11,121	4,407,810
Pontiac	189,214	417,910	287,616	223,286	207,569	123,541	71,486	290,912	186,905	115,205	69,855	145,259	70,976	29,740	31,308	5,400	2,464,982
Studebaker	120,774	303,964	120,671	157,043	129,796	19,668	39,032	106,622	75,916	54,428	23,863	40,425	18,196	8,038	14,704	2,689	1,236,852
Willys	12,306	30,221	27,254	36,273	29,294	20,218	13,033	15,532	15,767	5,922	5,666	13,031	2,330	1,376	6,930	1,528	236,981
Miscellaneous	14,203	22,715	16,481	21,842	4,991	3,130	2,181	5,031	4,087	3,327	2,220	3,501	3,548	2,225	17,549	6,719	135,530
Total	2,888,409	6,114,348	4,987,648	2,953,958	2,987,019	1,974,844	966,493	3,780,692	2,793,906	1,995,717	1,243,675	2,128,403	1,492,890	687,973	1,451,334	110,229	38,515,538

* Data from Reuben H. Donnelley Corp.

AND MODEL YEAR—*continued*

Model	Yr.	Neb.	Nev.	N.H.	N. J.	N.M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.	Totals
WHITE	'51	80	4	20	267	13	576	120	9	727	130	62	949	17	59	11	53	337	15	4	84	94	66	142	9	6445
	'50	103	3	22	485	25	1064	356	3	1188	224	148	1079	58	121	23	296	720	20	4	205	127	95	255	29	11627
	'49	47	3	11	307	44	717	200	4	764	129	64	706	34	68	8	177	395	15	6	134	72	95	142	12	7122
	'48	114	5	17	416	35	949	280	23	912	156	191	1103	47	109	25	202	636	19	19	209	170	274	297	48	10640
	'47	174	4	28	430	33	1111	312	27	1187	173	191	1331	55	135	33	243	790	36	23	222	163	262	327	56	12539
	'46	104	8	29	367	39	1001	229	21	776	112	133	744	48	120	14	158	504	17	14	145	89	135	221	30	9137
	'45	78	2	15	226	25	585	93	13	468	124	129	480	26	43	9	61	302	21	1	92	96	129	187	17	5938
	'44	43	1	7	114	5	233	52	3	250	39	64	256	6	18	5	31	148	9	2	54	31	41	91	11	2720
	'43	29	2	4	30	10	63	16	1	97	20	33	35	2	5	1	15	21	6	1	19	27	22	22	8	987
	'42	15	6	6	57	20	179	53	2	192	47	150	129	14	25	7	56	86	25	4	61	84	67	86	21	2824
	'41	67	4	17	298	21	711	126	6	695	98	139	451	48	45	5	95	239	25	2	92	134	95	150	15	6182
	'40	6	1	13	209	11	308	34	1	313	33	59	181	19	11	1	16	61	11	3	49	38	25	68	2	2722
	'39	5	2	5	139	7	288	34	2	180	15	33	218	15	9	1	25	40	3	2	36	38	23	30	5	1992
	'38	3	3	3	127	3	206	15	1	97	9	37	108	10	9		10	46	1	1	6	9	45	16	1	1499
	'37	9	3	6	152	2	384	16		231	21	42	174	14	13	1	19	30	7	4	22	76	33	26	5	2282
	'36	6	1	1	145	1	335	17	4	158	9	11	181	7	9	2	13	27	3	3	21	45	26	33		1911
	'35	2			63	1	127	8	1	58	6	15	21	2	5		7	14			8	19	5	11	1	746
	Before '35	19	5	1	164	6	386	6	13	185	15	67	115	16	9	3	14	32	1		21	156	12	31	10	2412
	Unid.*	2			23	4	24	3		9	4	2	133	1	2		19	26	3		1	3	1	4	9	662
	Total	912	57	207	4019	335	9177	1972	134	8485	1332	1570	8251	437	813	149	1510	4454	237	98	1494	1500	1411	2129	288	90356
WILLYS	'51	311	53	73	486	270	871	293	64	723	233	725	1515	24	103	164	123	803	132	190	219	573	556	294	218	16457
	'50	488	93	122	761	448	981	442	160	751	608	1132	1227	64	244	396	259	1403	187	377	568	900	644	342	310	24812
	'49	846	78	70	682	328	1034	781	186	978	900	875	1069	56	354	475	400	1959	251	226	572	805	1383	384	310	28942
	'48	1349	102	208	1128	428	2364	2201	363	2369	1710	1566	2433	185	851	1112	637	3633	375	484	1515	1248	2622	1438	434	56880
	'47	709	63	105	403	321	870	1340	1 1	1086	1123	992	1154	96	582	664	275	1816	206	445	914	918	1452	708	242	33030
	'46	455	107	130	375	196	828	1192	110	1171	696	668	793	44	537	382	122	1438	116	388	860	519	930	747	97	26704
	'45	49	11	17	47	31	68	76	17	139	51	127	67	12	41	25	15	124	10	32	65	138	111	51	9	2880
	'44	8	7	5	47	14	49	82	6	23	35	44	26	2	22	8	9	61	15	4	34	79	39	8	1	1240
	'43	27	12	2	16	23	38	91	1	24	53	96	17	1	34	8	9	105	33	6	41	118	32	12	14	2170
	'42	58	29	12	43	58	68	209	7	71	167	293	24	2	112	14	46	350	61	18	111	410	96	30	17	5044
	'41	37	11	9	36	29	93	68	8	90	50	142	113	23	38	13	45	106	15	4	37	83	67	16	10	2903
	'40	26	6	11	62	24	95	47	3	135	39	189	81	5	20	13	55	94	11	5	20	61	39	49	3	2607
	'39	6	1	6	15	9	30	12	1	35	34	39	76	2	12	5	16	34	3	2	15	15	30	12	3	1017
	'38	16	4	6	23	11	45	18	6	63	34	54	51	4	9	9	12	55	1	4	13	21	17	40	2	1364
	'37	32	2		13	6	11	2	2	37	16	104	25		7	2	10	17	3	1	4	70	6	27		1766
	'36	3	3	2	9	4	6		1	35	14	88	17		3	2	6	13	6		1	47	2	3		647
	'35	4	2	2	1		5		1	19	4	25	11				3	9	2		2	17	1	2		387
	Before '35	47	4	3	15	3	61	1	6	33	10	41	140	2	4	5	5	28	7	1	2	23	6	66	1	957
	Unid.*	11	3	6	21	8	36	3	1	13	32	25	93		4	6	38	72	4		7	3	5	30	2	1114
	Total	4485	591	798	4180	2213	7551	6606	1094	7795	5899	7204	8931	482	2977	3298	2089	12118	1437	2188	5029	6047	8280	4259	1873	212940
MISC.	'51	49	2	45	89	36	275	57	14	226	61	141	332	28	26	1	44	183	55	2	50	135	49	110	6	5109
	'50	81	3	58	140	34	471	206	21	325	112	218	394	55	43	9	167	435	22	9	40	236	74	102	14	10725
	'49	84	16	42	148	37	441	190	49	306	108	129	450	58	46	26	129	372	45	9	61	173	164	241	19	9696
	'48	88	19	61	271	27	754	157	37	351	108	191	485	75	62	16	101	668	44	21	66	217	158	179	22	9902
	'47	68	12	55	203	19	665	251	49	288	103	221	673	52	59	16	94	277	44	21	70	199	167	196	36	8938
	'46	39	9	30	181	26	706	253	22	193	40	119	235	49	54	6	113	277	53	23	62	121	76	148	35	6968
	'45	8	7	8	44	9	289	91	11	56	19	65	87	9	1	3	12	91	12	6	12	62	10	68	12	2354
	'44	7	6	15	13	10	101	56	4	17	6	42	65	3	4	2	3	25	6	2	3	29	2	37	4	1093
	'43	3	2		10	3	51	7	4	13	4	14	63	8			1	32	1		8	29	1	11	1	631
	'42	21	8	12	41	3	129	44	9	53	43	79	74	24	22	3	39	116	22	2	20	64	11	43	10	2223
	'41	30	4	30	12	3	141	39	9	136	34	110	203	25	36	9	58	192	14	6	37	88	64	64	5	4412
	'40	18	8	56	61	11	389	148	9	122	25	84	134	31	19	8	30	129	15	6	21	48	35	77	6	2737
	'39	19	1	29	46	8	251	88	11	103	23	65	137	12	14	6	25	110	13	3	34	38	38	68	5	2613
	'38	14	8	11	63	3	276	49	12	81	17	42	202	13	21	6	20	76	7	3	14	44	23	65	4	2314
	'37	21	5	19	112	6	443	48	25	191	54	98	182	18	31	25	27	106	14	10	23	119	62	144	8	3982
	'36	29	2	26	119	9	430	56	21	210	26	76	182	15	21	12	33	97	6	5	20	61	59	117	6	3481
	'35	16	3	13	42	3	204	13	6	105	19	39	59	10	23	7	16	49	7	5	21	47	20	61	4	1952
	Before '35	194	44	88	575	14	1733	89	125	456	158	313	1076	75	66	82	119	501	40	110	67	539	122	716	43	14798
	Unid.*	95	4	19	174	9	363	12	63	53	191	113	470	20	12	77	882	24			12	63	18	192	34	5533
	Total	832	158	589	2376	291	8212	1922	449	3317	1033	2207	5146	569	575	247	1098	4815	444	242	651	2313	1143	2684	274	100571
Total All Makes		121024	16205	30349	206125	60053	433309	212451	78614	341981	197202	134283	423888	31505	104840	68057	163378	567970	45448	24939	181411	160395	118262	197495	37723	8064883

Unid.*—Unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1951.

Trucks in Use by Makes and by Model Year*

(As of July 1, 1951)

Makes	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	Prior to 1935	Year Unknown	Total July 1, 1951
Autocar	1,100	1,724	1,395	2,491	4,010	4,207	2,035	970	193	765	2,062	1,179	1,028	655	813	805	276	1,007	186	20,823
Brockway	1,371	2,220	1,434	2,627	3,777	3,286	1,819	927	85	272	1,615	989	932	609	662	625	242	541	203	24,217
Chevrolet	178,790	381,142	324,150	291,997	199,888	245,662	30,383	14,284	2,383	81,567	170,824	131,935	97,943	66,319	103,333	80,144	41,427	89,413	12,652	2,543,236
Crosley	302	456	577	2,179	1,601	57	7	11	2	64	54	24	20	9	15		3	6	41	5 430
Diamond T	2,763	4,988	4,547	10,072	5,956	4,752	2,946	1,350	204	1,235	4,241	3,529	2,706	2,071	3,094	2,631	1,440	2,384	552	65,361
Divco	2,077	4,247	3,554	5,769	5,791	4,233	1,773	269	113	591	2,506	1,587	1,347	925	396	354	123	243	287	36,187
Dodge	51,288	104,278	109,231	109,935	115,682	105,064	19,071	6,669	2,115	33,788	65,342	40,236	33,715	19,945	31,018	35,602	15,857	19,366	5,350	922,532
Federal	724	1,029	960	3,162	4,948	3,507	1,606	614	309	647	958	703	521	364	512	541	323	795	246	22,291
Ford	121,160	303,948	198,211	224,397	168,535	160,311	40,396	16,382	8,455	63,404	144,356	102,612	72,795	53,270	91,086	84,707	61,651	220,884	13,040	2,149,580
F. W. D.	134	274	248	523	1,056	719	297	121	25	152	206	189	130	132	215	214	114	300	50	5,069
G. M. C.	48,121	101,348	70,605	73,852	46,256	24,391	11,104	5,310	2,400	20,333	34,946	24,361	16,584	9,506	19,686	8,814	1,828	3,450	3,473	526,367
Hudson											706	427	280	266	694	371	123	363	4,904	8,134
International	47,219	86,218	97,441	116,992	111,945	80,913	25,723	13,289	3,258	24,804	70,596	50,362	39,127	31,146	30,965	28,146	14,242	15,900	5,249	891,435
Kenworth	285	622	396	439	502	393	229	130	27	73	202	146	91	67	76	74	49	219	14	4,134
Mack	5,779	9,065	6,156	8,654	11,679	3,918	4,186	2,475	372	2,054	6,992	4,907	3,606	2,190	2,213	1,426	649	5,385	740	82,648
Plymouth										390	9,239	7,919	6,739	4,540	8,859	2,702	1,095	3,388	616	44,877
Pontiac	645	1,740	1,461																332	4,178
Reo	2,284	3,061	3,386	10,647	9,215	8,109	2,296	409	148	1,043	1,163	252	421	1,197	1,353	790	780	2,677	482	49,701
Sterling	159	346	190	362	548	480	379	244	40	196	329	227	203	109	151	130	67	389	36	4,585
Studebaker	19,020	37,914	75,051	27,446	38,278	24,270	2,933	1,525	510	1,917	4,859	1,243	1,606	1,058	2,510	921	410	1,748	1,213	244,431
White	6,445	11,627	7,122	10,040	12,538	9,137	5,938	2,720	987	2,624	6,182	2,722	1,992	1,499	2,262	1,911	746	2,412	682	90,356
Willys	16,457	24,812	28,942	56,880	33,030	26,704	2,880	1,240	2,170	5,044	2,903	2,607	1,017	1,364	1,766	647	387	957	1,114	212,940
Miscellaneous	5,109	10,725	9,696	9,902	8,938	6,988	2,354	1,063	631	2,223	4,412	3,737	2,613	2,314	3,982	3,401	1,932	14,796	5,533	100,571
Total	511,222	1,091,802	944,753	971,056	787,053	717,101	158,353	70,012	24,438	243,376	533,823	381,843	295,620	199,547	305,483	252,744	144,378	395,706	56,775	8,064,883

* Data from Reuben H. Donnelley Corp.

EXPORTS

U. S. Exports of New Motor Vehicles, 1920-1951

In Units and Their Value

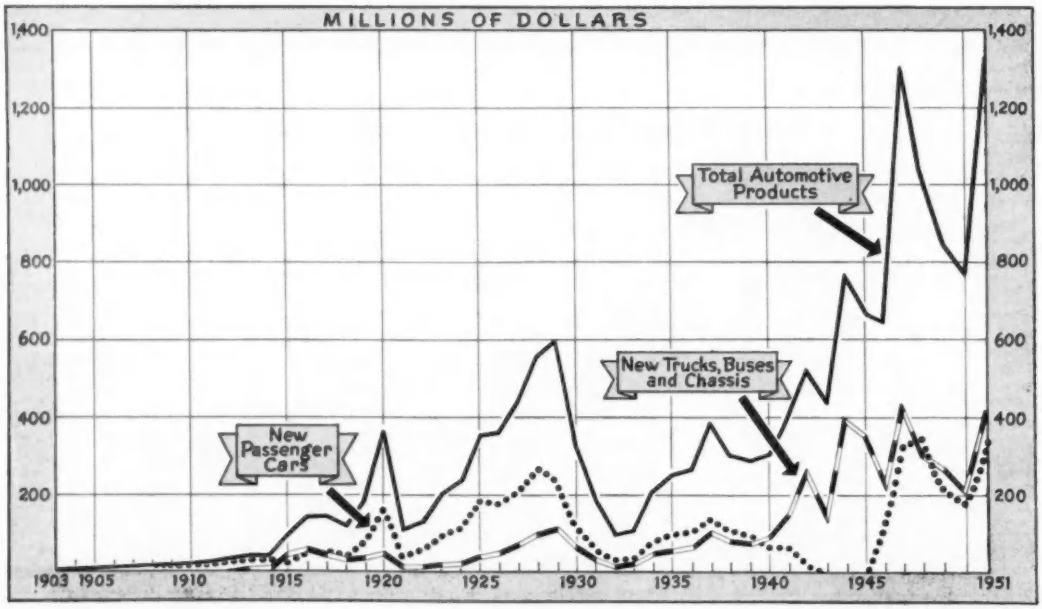
Compiled by Motor Vehicle Division, National Production Authority, from records of the Bureau of the Census

YEAR	PASSENGER CARS Number	PASSENGER CARS Value	PASSENGER CARS % of U. S. Production (Units)	TRUCKS, BUSES AND CHASSIS Number	TRUCKS, BUSES AND CHASSIS Value	TRUCKS, BUSES AND CHASSIS % of U. S. Production (Units)	TOTAL MOTOR VEHICLES Number	TOTAL MOTOR VEHICLES Value	TOTAL MOTOR VEHICLES % of U. S. Production (Units)
1920	142,508	165,255,921	7.5	29,136	46,775,781	9.1	171,644	212,031,702	7.7
1921	30,950	32,533,725	2.1	7,840	10,335,893	5.2	38,790	42,869,618	2.4
1922	66,791	51,049,816	2.9	11,443	8,270,708	4.2	78,234	59,320,524	3.0
1923	127,035	90,692,272	3.5	24,859	15,317,136	6.1	151,894	106,009,408	3.7
1924	151,380	112,534,729	4.7	27,352	19,199,344	6.6	178,732	131,734,073	4.9
1925	244,306	184,885,830	6.5	58,625	37,703,402	11.0	302,931	222,589,232	7.1
1926	238,540	176,432,157	6.3	66,880	47,176,107	21.1	305,420	223,608,264	7.1
1927	278,748	207,966,456	9.5	105,447	70,123,600	22.7	384,195	278,090,056	11.2
1928†	375,428	269,393,369	9.8	140,191	93,006,070	25.8	515,619	362,399,439	11.8
1929	346,630	239,334,000	7.5	197,872	112,607,985	25.6	544,502	351,941,985	10.1
1930	159,464	110,355,978	5.7	85,666	56,861,119	14.9	245,130	167,217,097	7.3
1931	86,437	52,851,585	4.3	49,415	26,210,975	11.8	135,852	79,062,560	5.6
1932	44,282	25,502,047	3.8	25,532	12,142,681	10.8	69,814	37,644,728	5.1
1933	67,355	33,945,464	4.2	44,103	20,691,338	12.7	111,458	54,636,802	5.8
1934	145,357	80,604,563	6.8	93,766	45,125,359	16.3	242,153	125,729,922	3.7
1935	179,470	99,342,411	5.6	100,668	51,995,938	14.4	280,138	151,338,349	7.0
1936	186,542	107,483,285	5.1	108,167	56,765,713	12.7	294,709	164,248,998	6.6
1937	237,719	140,638,203	6.0	169,076	102,689,939	18.9	406,795	243,528,142	8.4
1938	167,693	104,628,982	8.4	117,943	74,451,986	24.1	285,636	179,080,968	11.4
1939	143,909	87,171,300	5.0	116,913	71,422,015	16.4	260,822	158,593,315	7.2
1940	88,806	57,263,737	2.6	103,459	87,867,077	13.7	192,265	145,120,814	4.5
1941	81,746	60,702,648	2.4	147,132	148,149,880	13.9	228,878	208,852,528	5.0
1942	13,951	13,199,744	‡	156,344	258,241,298	19.1	170,295	271,441,042	....
1943	2,088	2,420,506	‡	74,847	145,772,105	10.7	76,935	148,192,611	....
1944	1,649	3,784,433	‡	175,080	399,795,242	23.8	176,729	402,579,675	....
1945	1,206	1,447,376	1.7	142,338	348,327,144	21.7	143,544	349,774,520	19.8
1946	116,994	122,500,568	5.4	167,980	225,929,505	17.8	284,974	348,430,073	9.2
1947	266,795	335,330,628	7.5	267,589	429,755,475	21.6	534,384	765,086,003	11.1
1948	217,911	379,837,012	5.6	204,831	343,160,170	14.8	422,742	709,592,487	8.0
1949	140,186*	305,022,791	3.7	133,963*	228,147,610	11.9	274,149*	433,170,401	4.4
1950	119,719	178,550,596	1.8	130,176	216,029,884	9.7	249,895	394,580,480	3.1
1951	216,973	339,906,800	4.1	216,692	409,290,971	15.2	433,665	749,197,771	6.4

‡ Taken from stockpiles. † From 1928 through 1941 exports include shipments in non-contiguous territories. *Does not include military vehicles for last six months of 1949.

NOTE—Prior to 1931 figures include used vehicles, but the effect of these used vehicles on per cent of production is negligible.

1951 AUTOMOTIVE EXPORTS VALUED AT $1,328,000,000



U. S. Exports of New Trucks and Chassis

By Gross Vehicle Weights

G.V.W.	1951 Number	1951 Value	1950 Number	1950 Value
Gasoline				
5,000 lb. and under	67,937	$80,270,126	39,856	$43,680,292
5,001-10,000 lb.	30,117	42,344,553	19,365	24,755,476
10,001-14,000 lb.	14,172	21,514,496	11,244	15,066,580
14,001-16,000 lb.	66,543	113,161,126	37,446	58,649,671
16,001-19,500 lb.	16,452	39,325,255	8,706	19,357,515
19,501 and over	12,344	50,529,695	5,871	21,938,195
Diesel and Semi-Diesel				
19,500 lb. and under	381	1,892,357	395	1,774,805
19,501 lb. and over	1,702	14,612,222	1,379	8,254,572
Total—All Trucks	209,648	$364,649,831	124,262	$193,477,106

Compiled by Motor Vehicle Division, National Production Authority, from records of the Bureau of the Census.

U. S. Exports of Tires and Tubes

In Units and Their Value

Casings	1951 Number	1951 Value	1950 Number	1950 Value
Truck and bus	854,073	$45,399,288	696,698	$37,191,228
Passenger car	637,014	10,257,867	622,314	7,032,185
Off-the-road	92,136	12,381,544	56,019	5,204,272
Farm tractors	71,395	2,860,433	69,116	2,397,046
Motorcycle	6,165	48,994	5,075	39,855
Inner Tubes				
Car, truck and bus	...	...	310,203	$82,146
Truck and bus	546,328	2,580,255	182,439	734,823
Passenger car	387,456	839,745	180,777	409,029
Inner tubes, n.e.s.	195,514	592,435	134,153	436,445
Total—Casings	1,660,783	$70,948,126	1,349,222	$41,865,586
Total—Inner Tubes	1,129,298	$4,013,435	807,572	$2,562,453

Compiled by Motor Vehicle Division, National Production Authority, from records of the Bureau of the Census.

U. S. Exports of Automotive Products, 1948-1951

Vehicles, Engines, Parts and Equipment

Compiled by Motor Vehicle Division, National Production Authority, from records of Bureau of the Census

Type of Product	1951 Number	1951 Value	1950 Number	1950 Value	1949 Number	1949 Value	1948 Number	1948 Value
Passenger Car and Chassis, New	216,973	$329,906,800	119,719	$178,550,596	†140,186	$205,022,791	217,911	$279,837,012
Passenger Car and Chassis, Used	6,555	7,487,179	6,268	7,627,329	4,235	6,147,501	4,641	7,854,289
Trucks, Buses and Chassis New	216,692	409,290,971	130,176	216,029,884	†133,963	228,147,610	204,831	343,160,770
Trucks, Buses and Chassis, Used	3,125	4,675,778	3,172	4,101,368	2,989	4,151,393	2,226	3,534,560
Trailers, n.e.s.	2,352	5,749,065	2,619	2,881,889	3,059	4,647,659	6,092	6,719,245
Motorcycles	2,423	1,519,783	2,349	1,240,273	3,437	1,932,953	6,672	3,217,003
Total—New and Used Vehicles	449,120	$768,629,576	264,303	$410,431,339	287,869	$450,049,907	442,374	$644,322,882
ENGINES								
Diesel, truck and bus for assembly	94	99,514	42	91,327	121	206,506	335	505,959
Gasoline, truck and bus for assembly	17,278	4,401,254	12,605	3,251,016	11,524	3,034,913	8,143	1,821,444
Passenger car for assembly	17,187	2,000,165	25,306	2,348,349	13,201	1,217,760	1,814	258,061
Diesel for replacement	2,071	3,600,991	1,255	1,832,769	1,263	2,140,129	1,135	1,490,686
Gasoline for replacement	30,104	8,216,491	19,746	5,015,242	15,353	3,640,183	12,291	2,859,261
Marine, outboard	.....	.....	.....	.....	12,389	1,873,851	13,302	1,783,556
Other marine	.....	.....	.....	.....	2,373	1,223,610	3,879	2,546,781
Total—Engines	66,729	$18,418,415	58,954	$12,538,703	56,224	$13,336,952	39,899	$11,267,746
PARTS FOR ASSEMBLY	.....	$143,627,532	.....	$112,240,214	.....	$95,892,603	.....	$86,474,518
REPLACEMENT PARTS								
Motorcycle parts and accessories	.....	919,380	.....	922,634	.....	976,856	.....	984,915
Spark plugs	16,522,929	4,694,463	15,779,043	4,287,277	12,045,680	3,363,321	11,340,675	2,978,385
Leaf Springs, lbs.	19,886,584	4,136,379	16,230,085	2,946,128	.....	.....	.....	.....
Parts for replacement, Other, n.e.s.	.....	222,039,645	.....	146,458,914	.....	158,415,704	.....	143,756,268
Auto horns, hand and electric	700,531	1,837,122	401,545	1,082,806	442,982	1,298,865	585,113	1,539,256
Auto accessories, n.e.s.	.....	36,005,595	.....	17,292,039	.....	16,778,451	.....	16,678,314
Brake lining, molded and semi-molded, lbs.*	6,944,935	6,017,473	3,502,730	2,686,954	3,086,024	2,641,045	2,601,413	2,238,135
Brake lining, not molded, lin. ft.*	1,034,930	661,474	532,358	342,542	763,961	479,645	681,364	404,085
Brake blocks, molded and semi-molded, lbs.*	725,936	680,989	438,668	397,147	284,200	275,293	{238,853 / 223,282}	188,368 / 26,509
Clutch facings, molded and semi-molded, units*	1,452,270	935,913	1,055,685	677,032	934,820	523,756	{194,028 / 373,979}	355,173 / 195,764
Starting, Lighting and Ignition Equipment*	.....	19,638,139	.....	14,206,772	.....	13,964,230	.....	11,055,518
Batteries, storage, 6 and 12 volt*	673,511	8,315,359	453,678	5,676,327	470,839	6,602,796	622,198	7,284,940
Belts, fan for automobiles, lbs.	.....	.....	.....	.....	.....	.....	976,702	1,113,753
Total—Replacement Parts	.....	$295,831,931	.....	$196,876,772	.....	$205,319,962	.....	$188,798,686
GARAGE EQUIPMENT								
Auto Tire Service Equipment and Parts	.....	966,291	.....	507,719	.....	607,846	.....	824,802
Pumps for Gasoline and Oil	15,283	3,685,763	10,314	2,188,154	11,819	2,707,624	20,820	3,295,412
Service Appliances and Parts, Other	.....	17,001,771	.....	12,091,937	.....	12,924,261	.....	13,763,940
Total—Garage Equipment	.....	$21,653,825	.....	$14,787,810	.....	$16,239,731	.....	$17,884,154
TIRES AND TUBES								
Casings, truck and bus	1,017,604	60,641,265	821,823	34,792,546	1,181,720	45,599,866	1,154,456	50,082,524
Casings, other automobile	643,179	10,306,861	527,389	7,073,040	750,660	15,347,216	633,506	8,968,041
Inner tubes for cars, trucks and buses	1,129,298	4,013,435	807,572	2,562,453	1,386,555	4,585,102	1,201,469	4,445,408
Tires, solid for cars and trucks	.....	.....	.....	.....	.....	.....	111,232	3,092,000
Tire sundries and repair material, Camelback, lb.	3,898,325	1,381,488	2,432,336	712,083	1,883,666	541,203	1,395,244	397,160
Other Tire sundries and repair materials, lbs	4,011,506	3,673,792	2,323,845	1,964,600	1,933,365	1,243,451	1,361,596	947,065
Total—Tires and Tubes, etc.	....	$80,016,841	.....	$47,005,722	.....	$67,316,838	.....	$67,932,198
Total—All Products	.....	$1,328,228,120	.....	$793,880,560	.....	$848,155,993	.....	$1,016,680,184

* For all uses.
† Excludes military vehicles for last six months.

U. S. Imports of New Passenger Cars*

Imports from	1951 Number	1951 Value	1950 Number	1950 Value	1949 Number	1949 Value	1948 Number	1948 Value
Canada	227	$232,986	43	$57,144	52	$72,714	122	$155,646
Mexico	3	2,304	4	7,222	3	7,775	2	1,745
Bahamas	....	.....	....	.....	1	1,009	....	.....
Sweden	2	3,234	1	1,284	....	.....	4	19,312
United Kingdom	22,069	24,748,637	19,442	19,015,756	7,209	8,266,741	25,228	27,025,866
Netherlands	....	.....	....	.....	1	3,964	3	9,392
Belgium	4	9,270	1	1,650	1	1,250	....	.....
France	920	823,344	1,426	1,062,908	253	211,544	2,669	2,272,002
Germany	417	414,276	328	251,322	1	798	1	952
Italy	49	145,792	28	98,439	16	49,599	18	68,442
Switzerland	....	.....	....	.....	1	925	....	.....
Australia	....	.....	....	.....	4	7,464	....	.....
Czechoslovakia	3	3,374	14	15,366	....	.....	....	.....
All Others	3	5,330	....	.....	....	.....	....	.....
Total	23,697	$26,388,547	21,287	$20,511,101	7,542	$8,623,783	28,047	$29,554,359

* Motor Vehicle Division, National Production Authority, Department of Commerce.

U. S. Motorcycle Imports, 1948-1951*

Imports from	1951 Number	1951 Value	1950 Number	1950 Value	1949 Number	1949 Value	1948 Number	1948 Value
Mexico	....	.....	....	.....	2	$493	2	$800
Canada	7	$3,568	17	$7,002	14	5,070	39	19,338
Cuba	....	.....	1	525	....	.....	....	.....
United Kingdom	7,897	2,631,994	7,603	2,543,489	4,391	1,480,979	7,964	2,665,705
Eire	....	.....	1	98	....	.....	....	.....
Netherlands	1	100	1	129	2	140	3	650
Belgium	1	121	6	1,516	9	3,779	7	3,738
France	265	16,122	142	10,813	199	19,710	24	4,604
Germany	235	87,299	636	160,581	35	12,279	29	5,211
Austria	46	10,657	45	10,330	148	45,022	190	39,349
Czechoslovakia	495	77,493	809	167,746	280	64,693	3,509	647,707
Italy	140	37,823	160	32,312	94	23,345	37	8,951
China	....	.....	1	386	....	.....	....	.....
Hong Kong	....	.....	1	50	1	440	....	.....
Japan	1	223	1	426	....	.....	....	.....
Tunisia	....	.....	1	200	....	.....	....	.....
Union of South Africa	1	300	1	300	....	.....	1	300
All other countries	3	1,256	....	.....	3	530	4	702
Total	9,096	$2,866,956	9,426	$2,935,902	5,178	$1,656,480	11,809	$3,397,056

* Motor Vehicle Division, National Production Authority, Department of Commerce.

U. S. Imports for Consumption, 1939-1951

Year	New Trucks Number	New Trucks Value	New Truck and Bus Chassis Number	New Truck and Bus Chassis Value	Other New Vehicles—Passenger Cars Number	Other New Vehicles—Passenger Cars Value	Other Used Vehicles or Chassis Number	Other Used Vehicles or Chassis Value	Total—New and Used Vehicles Number	Total—New and Used Vehicles Value
1939	...	.....	1	$900	298	$376,960	335	$139,684	634	$517,544
1940	...	.....	...	.....	253	401,214	302	140,207	555	541,421
1941	3	$4,607	...	.....	50	52,165	308	153,304	361	210,076
1942	26	205,214	1	800	25	19,333	372	174,832	424	400,179
1943	50	75,438	9	13,500	74	90,067	217	96,378	350	89,579
1944	26	81,876	1	1,845	11	14,639	298	161,657	336	260,017
1945	4	5,451	1	756	51	80,162	475	366,719	531	453,088
1946	8	11,711	7	8,328	1,374	1,415,127	574	365,218	1,963	1,800,384
1947	18	28,521	4	6,543	1,453	1,742,473	646	510,618	2,121	2,288,155
1948	423	520,007	261	219,537	28,047	29,554,359	381	357,959	29,112	30,751,862
1949	458	606,857	57	78,358	7,542	8,623,783	308	285,170	8,366	9,593,168
1950	65	143,339	16	15,331	21,287	20,511,101	321	275,905	21,689	20,945,676
1951	182	320,971	67	87,658	23,697	26,388,547	461	378,044	24,407	27,175,220

1951 Exports of New Vehicles are 56% of Total Automotive Exports

	Passenger Cars	Trucks and Buses	Cars and Trucks	Parts and Accessories†	Rubber Tires and Tubes	Total Value of Exports†
1935	99,342,411	51,985,938	151,328,349	89,354,087	13,206,125	253,888,561
1936	107,483,285	56,683,828	164,167,113	91,329,409	13,938,409	269,434,931
1937	140,638,203	102,957,996	243,596,199	122,364,286	17,914,078	383,874,563
1938	104,628,982	74,490,036	179,119,018	107,613,293	15,871,285	302,603,576
1939	89,172,300	71,422,015	160,594,315	109,321,470	21,883,803	291,789,588
1940	63,766,211	91,324,669	155,100,880	117,178,166	27,520,815	299,794,861
1941	69,077,198	154,101,500	223,178,698	133,015,153	31,472,904	387,666,755
1942	12,884,618	263,861,210	277,745,928	158,719,416	46,765,430	483,230,774
1943	2,895,124	147,920,724	150,815,858	133,038,789	92,716,670	376,571,317
1944	3,623,981	401,587,626	405,211,607	245,609,659	61,879,255	713,200,521
1945	2,898,836	352,836,408	355,735,244	247,094,984	59,880,953	662,711,181
1946	122,500,568	227,748,532	350,249,100	207,418,991	73,767,045	631,435,136
1947	335,330,528	429,998,475	765,329,003	393,078,056	121,081,083	1,279,488,142
1948	279,837,012	343,160,770	622,997,782	316,102,194	66,587,973	1,005,687,949
1949	205,022,791	228,147,610	433,170,401	341,661,414	67,316,838	842,148,652
1950	178,550,596	216,029,834	394,580,430	352,294,358	47,006,722	793,880,560
1951	339,906,800	409,290,971	749,197,771	499,013,508	80,016,841	1,328,228,120

† Includes used cars and trucks, trailers and motorcycles, parts for assembly and replacement and garage equipment.

1952 CAR PRICE, WEIGHT AND BODIES

Following are prices at factory for cars with standard equipment as of February 25, 1952. State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight
BUICK				
Special 40				
Bus. Coupe	1864	176	2040	
Sport Cpe., 2d	1918	181	2099	3605
Sedan, 2d	1951	183	2134	
Sedan, DeL., 2d	1994	187	2181	3620
Sedan, 4d	2005	188	2193	
Sedan, DeL., 4d	2048	191	2239	3665
Rivra. Cpe., 2d	2086	193	2279	3665
Conv. Cpe., 2d	2399	216	2615	3850
Super 50				
Rivra. Cpe., 2d	2244	216	2460	3775
Sed. Rivra., 4d	2323	222	2545	3825
Conv. Cpe., 2d	2605	243	2848	3970
Est. Wagon, 4d	3000	272	3272	4105
R'dmaster 70				
Rivra. Sed., 4d	2899	279	3178	4265
Rivra. Cpe., 2d	2995	287	3282	4235
Conv. Cpe., 2d	3130	298	3428	4395
Est. Wagon, 4d	3816	333	3949	4505
CADILLAC				
Series 62				
Spt. Coupe	3308	279	3587	4050
Tour. Sedan	3398	286	3684	4040
Cpe. deVille	3705	308	4013	4120
Conv. Cpe.	3845	318	4163	4340
Series 60				
Tour. Sedan	3984	339	4323	4200
Series 75				
Tour. Sedan	9004	424	5428	4890
Imp. Sedan	5205	438	5643	4710
CHEVROLET				
Styl. Spec. KJ				
Bus. Coupe, 2d	1403	130	1533	3045
Sedan, 2d	1482	135	1617	3085
Sport Coupe	1488	136	1624	3050
Sedan, 4d	1533	141	1674	3115
Styl. DeL. KK				
Sedan, 2d	1567	144	1711	3110
Sport Coupe	1584	146	1730	3100
Sedan, 4d	1618	147	1765	3145
Bel Air Coupe	1844	166	2010	3215
Conv. Coupe	1957	175	2132	3380
Sta. Wagon	2116	186	2302	3475
Fltn. DeL. KK				
Sedan, 2d	1567	144	1711	3110
CHRYSLER‡				
Windsor 6				
Club Coupe	2279	178	2457	3550
Sedan, 4d, 6p	2301	179	2480	3640
Twn. and Cty.	2950	228	3178	4015
Sedan, 4d, 8p	3080	238	3318	4145
Wind. DeL. 6				
Sedan, 4d	2512	195	2707	3775
Newport	2944	220	3064	3855
Conv. Coupe	2958	229	3187	3990
Saratoga 8				
Club Coupe	2937	228	3165	3835
Sedan, 4d, 6p	2963	229	3192	4010
Twn. and Cty.	3819	278	3897	4345
Sedan, 4d, 8p	3848	296	4142	4510
New Yorker 8				
Sedan, 4d, 6p	3254	251	3505	4205
Newport	3858	292	3941	4325
Conv. Coupe	3773	291	4064	4480
Imperial 8				
Club Coupe	3527	272	3799	4220
Sedan, 4d, 6p	3540	272	3812	4315
Newport	3894	300	4194	4385
Crown Imp. 8				
Sedan, 4d, 8p	6355	466	6821	5380
Limousine	6469	474	6943	5450
CROSLEY				
Bus. Coupe	874	69	943	1340
Hotshot Rdst.	882	70	952	1175
Sta. Wagon	928	74	1002	1403
Spts. Roadstr.	953	76	1029	1175
Sedan	957	76	1033	1363
Conv. Sedan	969	77	1036	1320
Super Sta. Wag.	997	80	1077	1403
DE SOTO‡				
DeLuxe				
Club Coupe	2137	166	2303	3435
Sedan, 4d, 6p	2149	167	2316	3540
Carry All	2370	184	2554	3650
Sedan, 4d, 8p	2896	224	3120	4035
Custom				
Club Coupe	2333	181	2514	3565
Sedan, 4d, 6p	2352	183	2535	3660
Sportsman	2664	206	2870	3720
Conv. Coupe	2761	215	2976	3865
Sta. Wagon	2940	228	3168	4020
Sedan, 4d, 8p	3099	240	3339	4155
Suburban	3442	266	3708	4370
Fire Dome 8				
Club Coupe	2525	195	2700	3675
Sedan, 4d, 6p	2525	196	2721	3760
Sportsman	2837	220	3057	3850
Conv. Coupe	2934	227	3161	3950
Sta. Wagon	3113	241	3354	4080
DODGE‡				
Wayfarer				
Coupe, 3p	1737	135	1872	3050
Sedan, 2d	1873	147	2020	3140
Meadowbrk.				
Sedan, 4d	1993	156	2149	3355
Coronet				
Club Coupe	2063	162	2225	3290
Sedan, 4d	2078	163	2241	3385
Diplomat	2398	187	2585	3475
Conv. Coupe	2486	193	2679	3520
Sierra	2679	209	2888	3735
Sedan, 4d, 8p	2823	220	3043	
FORD				
Mainline 6				
Bus. Coupe	1389			2984
Tudor	1485			3070
Fordor	1530			3173
Ranch Wagon	1832			3377
Customline 6				
Tudor	1570			3070
Club Coupe	1578			3079
Fordor	1616			3173
Mainline 8				
Bus. Coupe	1459			3085
Tudor	1555			3151
Fordor	1600			3207
Ranch Wagon	1902			3406
Customline 8				
Club Coupe	1640			3153
Tudor	1640			3151
Fordor	1685			3207
Country Sed.	2060			3617
Crestline 8				
Victoria	1925			3274
Sunliner	2027			3339
Country Sq.	2186			3640
HENRY J				
Sedan, 4 cyl.	1332	117	1449	2293
Sedan, 6 cyl.	1466	128	1594	2341
HUDSON				
Pacemaker 6				
Coupe, 3p	1910	193	2103	3305
Brougham	2047	203	2250	3355
Club Coupe	2090	207	2297	3390
Sedan, 4d	2090	207	2297	3335
Conv. Brghm.	2586			
Wasp				
Brougham	2186	210	2396	3470
Sedan, 4d	2234	214	2448	3485
Club Coupe	2234	214	2448	3435
Hollywood	2551	239	2790	
Conv. Brghm.	2770	256	3026	
Commodore 6				
Club Coupe	2397	231	2628	3580
Sedan, 4d	2421	234	2655	3585
Hollywood	2720	257	2977	
Conv. Brghm.	2949	275	3224	
Hornet 6				
Club Coupe	2485	238	2723	3550
Sedan, 4d	2509	240	2749	3600
Hollywood	2809	262	3071	3630
Conv. Brghm.	3038	280	3318	
HUDSON (Continued)				
Commodore 8				
Club Coupe	2485	238	2723	3580
Sedan, 4d	2510	239	2749	3630
Hollywood	2808	263	3071	3660
Conv. Brghm.	3038	280	3318	
KAISER				
Special				
Bus. Coupe	1832	160	1992	3061
Sedan, 2d	1987	173	2160	3106
Sedan, 4d	2036	176	2212	3126
Traveler, 2d	2085	180	2265	3210
Traveler, 4d	2134	183	2317	3270
DeLuxe				
Sedan, 2d	2095	180	2275	3151
Club Coupe	2114	182	2296	3111
Sedan, 4d	2143	185	2328	3171
Traveler, 2d	2192	188	2380	3285
Traveler, 4d	2241	192	2433	3345
LINCOLN				
Customline				
Sedan, 4d	3198			4125
Sport Coupe	3293			4155
Capri				
Sedan, 4d	3331			4140
Hard Top	3518			4235
Convertible	3865			4350
MERCURY				
Customline				
Two Door	1987			3335
Four Door	2040			3390
Sport Coupe	2100			3435
Sta. Wagon, 6p	2525			
Sta. Wagon, 8p	2570			3795
Monterey				
Four Door	2115			3375
Hard Top	2226			3520
Convertible	2370			3635
NASH				
Rambler Super				
Suburban, 2d	1731			
Rambler Cust.				
Cty. Clb. Sed., 2d	1810			
Conv. Sedan, 2d	1833			
Stat. Wagon, 2d	1833			
Stat'n DeL.				
Bus. Coupe	1686			
Stat'n Super				
Sedan, 2d	1765			
Club Coupe	1789			
Sedan, 4d	1792			
Stat'n Custom				
Sedan, 2d	1824			
Club Coupe	1947			
Sedan, 4d	1950			
Ambassador				
Super				
Sedan, 2d	2111			
Club Coupe	2133			
Sedan, 4d	2137			
Custom				
Sedan, 2d	2269			
Club Coupe	2291			
Sedan, 4d	2296			
OLDSMOBILE				
DeLuxe 88				
Sedan, 2d	2050	196	2246	3565
Sedan, 4d	2110	201	2311	3608
Super 88				
Club Coupe	2127	202	2329	3587
Sedan, 2d	2173	206	2379	3603
Sedan, 4d	2235	210	2445	3649
Holiday	2430	225	2655	3640
Conv. Coupe	2595	238	2833	3867
98				
Sedan, 4d	2533	234	2767	3765
Holiday	2750	251	3001	
Conv. Coupe	2941	266	3207	
PACKARD				
200				
Club Sedan, 2d	2278	197	2475	3640
Tour. Sedan, 4d	2327	201	2528	3680
200 DeL.				
Club Sedan, 2d	2414	208	2622	3660
Tour. Sedan, 4d	2464	211	2675	3685
250				
Mayfair Cpe.	3028	265	3293	3805
Conv. Coupe			3450	4000
300				
Tour. Sedan, 4d	2843	251	3094	3890
PLYMOUTH‡				
Concord				
Coupe, 3p	1486			2893
Sedan, 2d	1612			2959
Suburban	1969			3145
Savoy	2103			3165
Cambridge				
Club Coupe	1640			3030
Sedan, 4d	1675			3066
Cranbrook				
Club Coupe	1731			3048
Sedan, 4d	1760			3086
Belvedere	2039			3105
Conv. Cpe.	2143			3256
PONTIAC				
Chieftain 6				
Sedan, 2d	1775	168	1943	3253
Sedan, 4d	1829	172	2001	3278
DeL. Sed., 2d	1871	175	2046	3253
DeL. Sed., 4d	1925	179	2104	3278
DeL. Catalina	2097	192	2289	3358
Sup. DeL. Cata.	2158	198	2354	3368
DeL. Conv. Cpe.	2226	202	2428	3478
Stat. Wagon	2383	214	2597	3593
DeL. Sta. Wgn.	2461	220	2681	3526
Chieftain 8				
Sedan, 2d	1845	173	2018	3333
Sedan, 4d	1898	177	2075	3378
DeL. Sed., 2d	1941	181	2122	3333
DeL. Sed., 4d	1995	184	2179	3378
DeL. Catalina	2166	198	2364	3443
Sup. DeL. Cata.	2227	202	2429	3448
DeL. Conv. Cpe.	2294	208	2500	3558
Stat. Wagon	2482	219	2671	3688
DeL. Sta. Wgn.	2530	224	2754	3633
STUDEBAKER				
Champ. Cust.				
Coupe, 3p				
Sedan, 2d, 6p			1724	
Coupe, 5p			1752	
Sedan, 4d, 6p			1757	
Champ. DeL.				
Coupe, 3p				
Sedan, 2d			1816	
Coupe, 5p			1843	
Sedan, 4d			1849	
Champ. Regal				
Sedan, 2d			1900	
Coupe, 5p			1928	
Sedan, 4d			1933	
Starliner			2220	
Soft Conv.			2257	
Commander				
Regal				
Sedan, 2d			2072	
Coupe, 5p			2101	
Sedan, 4d			2107	
State				
Sedan, 2d			2158	
Coupe, 5p			2187	
Sedan, 4d			2193	
Land Cruiser			2349	
Starliner			2488	
Soft Conv.			2531	
WILLYS				
DeL. Sedan, 2d				2578
Cust. Sedan, 2d				2585

‡ Prices do not include delivery and handling charges.

PASSENGER CAR

ENGINE TRENDS

Average Car Weight and Engine Hp.

Based on Number of Units Sold

	No. of Units Sold*	Gross Shipping Wgt. of Cars Sold (lb.)†	Gross Max. Hp. of Cars Sold‡	Average Weight (lb.)	Average Hp.
1930	2,625,979	7,320,000,000	142,800,000	2,780	54
1931	1,906,141	5,380,000,000	109,200,000	2,820	57
1932	1,096,399	3,280,000,000	75,400,000	2,920	69
1933	1,493,794	4,220,000,000	106,000,000	2,820	71
1934	1,868,557	5,560,000,000	156,000,000	2,940	83
1935	2,743,908	8,120,000,000	234,000,000	2,960	85
1936	3,404,497	10,193,000,000	291,000,000	3,000	86
1937	3,483,752	10,470,000,000	303,900,000	3,005	87
1938	1,891,021	5,743,000,000	169,200,000	3,035	89
1939	2,653,377	7,950,000,000	239,200,000	2,996	90
1940	3,415,905	10,511,000,000	312,100,000	3,077	91
1941	3,731,166	11,793,000,000	356,800,000	3,161	96
1946	1,815,196	599,600,000	181,200,000	3,303	100
1947	3,167,231	10,526,700,000	317,400,000	3,324	100
1948	3,490,952	11,552,200,000	352,600,000	3,309	100
1949	4,838,342	16,901,000,000	500,100,000	3,286	104
1950	6,326,438	20,624,200,000	665,400,000	3,260	104
1951	5,060,903	16,404,761,295	539,109,711	3,238	107

† Shipping weight of 5 passenger, 4 door sedan taken as typical and used in conjunction with new registrations of each model.

‡ Maximum horsepower taken from previous Statistical Issues and used in conjunction with new registrations of each model.

* R. L. Polk & Co. registrations of new passenger cars.

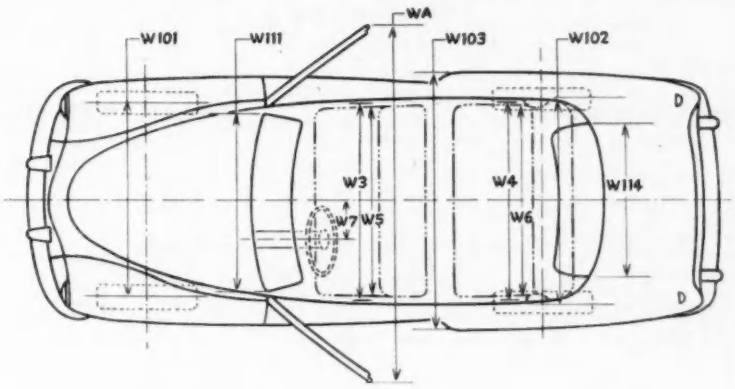
Progress in Engine Design

Average for Passenger Car Engines—Based on Number of Chassis Models Offered

	Average Piston Speeds (Ft. per Min.)	Average Displacement per Cylinder (Cu. In.)	Average Number of Cylinders	Average R.P.M. at Max. B.H.P.	Average Brake Horsepower
1930	2380	37.6	7.04	3170	87.6
1931	2395	36.6	7.49	3230	95.0
1932	2390	36.7	7.78	3250	101.0
1933	2463	36.0	7.88	3360	106.5
1934	2508	36.2	7.97	3420	112.5
1935	2535	36.1	7.51	3480	109.6
1936	2498	35.6	7.50	3487	110.1
1937	2554	35.8	7.74	3556	115.9
1938	2545	35.7	7.60	3576	111.7
1939	2498	35.1	7.28	3543	105.9
1940	2490	35.0	7.25	3580	107.9
1941	2492	35.2	7.15	3603	110.9
1942	2534	34.9	7.20	3638	112.5
1946	2522	35.4	6.97	3682	108.4
1947	2550	35.8	7.00	3660	109.4
1948	2492	35.6	6.96	3629	107.9
1949	2522	36.8	6.80	3690	113.3
1950	2505	37.2	6.88	3657	116.6
1951	2505	36.9	6.80	3758	118.0
1952	2502	36.1	6.81	3801	119.5

	Average Hp. per Cu. In. of Displacement	Average Compression Ratio	Average B. M. E. P. at Maximum Hp. (lb. per sq. in.)	Bore, Stroke and Displacement		
				Bore (In.)	Stroke (In.)	Disp. (Cu. In.)
1930	.331	5.15	82.7	3.26	4.51	264.6
1931	.344	5.23	84.3	3.21	4.45	273.0
1932	.353	5.29	86.2	3.26	4.41	283.9
1933	.376	5.57	88.5	3.23	4.40	284.1
1934	.388	5.72	90.1	3.24	4.40	289.2
1935	.398	5.98	90.2	3.23	4.39	271.4
1936	.411	6.14	92.3	3.39	4.32	267.9
1937	.417	6.25	93.1	3.25	4.31	277.6
1938	.412	6.32	91.2	3.25	4.27	271.1
1939	.415	6.32	92.7	3.24	4.23	255.3
1940	.426	6.41	93.9	3.25	4.17	254.0
1941	.431	6.63	96.7	3.26	4.15	252.1
1942	.446	6.60	98.5	3.26	4.16	251.8
1946	.440	6.77	94.6	3.27	4.11	246.4
1947	.437	6.73	94.5	3.26	4.16	250.4
1948	.437	6.76	95.3	3.29	4.12	247.1
1949	.453	6.9	97.3	3.35	4.10	250.9
1950	.455	7.00	98.6	3.37	4.11	256.1
1951	.474	7.09	99.5	3.40	4.00	250.4
1952	.486	7.12	101.3	3.39	3.95	245.7

1952 PASSENGER CAR BODY DIMENSIONS



MISCELLANEOUS AND WIDTH

PASSENGER CAR MAKE AND MODEL	MISCELLANEOUS								WIDTH DIMENSIONS									
									Interior					Exterior				
	Doors Hinged																	
	Front Door	Rear Door	Type of Finish	Hood Opening	Hood Counterbalanced	Hood Release Control	Windshield Type	Rear Window Type	W2—Front Shoulder Room	W4—Rear Shoulder Room	W5—Front Hip Room	W6—Rear Hip Room	W7—Steering Wheel Center to Center of Body	W101—Front Tread at Ground	W102—Rear Tread at Ground	W103—Maximum Overall Width	WA—Max. Overall Width-Doors Open	W111—Windshield Maximum Width	W114—Back Window Max. Width
Buick																		
8, 40	F	F	L	SF	N	I	1 Cu (a)	3 Cu (b)	57 1/2	56 1/2	63 1/4	63 1/2	15 1/2	59 1/4	59	76 1/2	141	55	57
8, 50	F	F	L	SF	N	I	1 Cu (a)	3 Cu (b)	58 1/4	56 1/2	61 1/2	64 1/2	15 1/2	59 1/4	62 1/2	80	142 1/2	55 1/2	55 1/2
8, 70	F	F	L	SF	N	I	1 Cu (a)	3 Cu (b)	58 1/4	56 1/2	64 1/4	64 1/4	15 1/2	59 1/4	62 1/2	80	142 1/2	55 1/2	55 1/2
Cadillac																		
V8, 6237-37D	F	F	L	F	Y	E	1	3 Cu	56 1/4	56 1/4	62 1/2	64 1/2	15 1/2	59	63	80 1/4	142 1/2	54 1/4	56 1/4
V8, 6219	F	F	L	F	Y	E	1	3 Cu	58 1/4	55 1/2	63 1/4	64 1/4	15 1/2	59	63	80 1/4	135 1/4		53 1/2
V8, 6267	F	F	L	F	Y	E	1	1 Fl	56 1/4	47 1/2	62	51	15 1/2	59	63	80 1/4	142 1/2		38
V8, 6019	F	F	L	F	Y	E	1	3 Cu	58 1/4	55 1/2	63 1/2	64 1/2	15 1/2	59	63	80 1/2	135 1/4		53 1/2
V8, 75	F	F	L	F	Y	E	1	1 Cu	58 1/4	56 1/4	64	56 1/2	15 1/2	59	63	80 1/4	135 1/4		39
Chevrolet																		
6, 1500, 2100†	F	F	L	F	Y	E	2 Cu	1 Cu	54 1/4	53 1/4	60	53 1/4	14 1/2	58 1/2	58 3/4	73 1/2	134	54	43 1/2
Chrysler																		
6, C-51	F	F	[illegible]	FF	Y	I	2 Fl	1 Cu	57	55 1/4	61 1/4	60 1/4	15 1/2	56 1/4	59 1/4	75 1/4	146 1/2	55 1/2	57 1/4
V8, C-55, C-52	F	F	En	FF	Y	I	2 Fl	1 Cu	57	55 1/4	61 1/4	60 1/4	15 1/2	57 1/4	59 1/4	75 1/2	146 1/2	55 1/2	57 1/4
V8, C-54	F	F	En	FF	Y	I	2 Fl	1 Cu	55 1/2	55	61 1/4	60 1/4	15 1/2	57 1/4	58 1/4	76	146 1/2	55 1/2	57 1/4
V8, C-53	F	R	En	FF	Y	I	2 Fl	1 Cu	56	56 1/4	60 1/4	52	15 1/2	57 1/4	58	80 1/4	153 1/4	53 1/4	49 1/4
Crosley																		
4, CD	F		L	Fu	N	I	2	1	42	42 1/2 (e)	43	33 (e)	13	40	40	50	132	40	24
4, VC	R (c)		L	(d)	N	E	1	1	47 1/2	N	47 1/2	N	18	40	40	51	113 1/2	41 1/2	25 1/2
De Soto																		
6, S-15, V8, S-17	F	F	En	FF	Y	E	2 FI	1 Cu	57 1/4	55 1/4	61 1/4	57 1/4	15 1/2	56 1/4	59 1/4	74 1/4	146 1/2	55 1/2	53 1/4
Dodge																		
6, D-41	F		En	FF	Y	E	2 FI	1 Cu	55 1/4	52 1/4	59 1/4	53 1/4	13 1/2	56 1/4	59	74	164 1/2	55 1/2	41 1/4
6, D-42	F	F	En	FF	Y	E	2 FI	1 Cu	57 1/4	54 1/4	61 1/4	60 1/4	13 1/2	56 1/4	59	74 1/4	146 1/2	55 1/2	53 1/4
Ford♦																		
Henry J.♦	6, 1HA, V8, 1BA																	
Hudson	4, 513, 6, 514																	
6, 4B	F	F	L	F	N	E	2 Cu	1 Cu	62	58	64	64	15 1/2	58 1/2	55 1/2	77 1/4	146 1/4	54 1/2	48
6, 5B	F	F	L	F	N	E	2 Cu	1 Cu	62	58	64	64	15 1/2	58 1/2	55 1/2	77 1/4	146 1/4	54 1/2	48
6, 6B	F	F	L	F	Y	I	2 Cu	1 Cu	61	57	64	64	15 1/2	58 1/2	55 1/2	77 1/4	146 1/4	54 1/2	48
6, 7B 8, 8B	F	F	L	F	Y	I	2 Cu	1 Cu	61	57	64	64	15 1/2	58 1/2	55 1/2	77 1/4	146 1/4	54 1/2	48
Kaiser♦																		
Lincoln♦	6, 511, 512																	
Mercury♦	V8, 1EL, 1EH																	
Nash♦	V8, 1CM																	
	6, 5210																	
	6, 5240	F	F	En	FF	Y	E	1 Cu	3 Cu	61 1/2	61 1/4	65	64 1/2	16	55 1/2	59 1/4	78	148 1/4	59 1/4	62
	6, 5260	F	F	En	FF	Y	E	1 Cu	3 Cu	61 1/2	61 1/4	65	64 1/2	16	55 1/4	60 1/2	78	148 1/4	59 1/4	62
Oldsmobile																		
V8, 98	F	F	L	F	Y	I	1 Cu	3 Cu	57 1/2	58 1/2	63 1/2	63 1/2	15 1/4	58	59	75 1/2	138 1/2		
V8, 98	F	F	L	F	Y	I	1 Cu	1 Cu	57 1/2	58 1/4	63 1/2	63 1/2	15 1/4	58	59	75 1/2	138 1/2		
Packard																		
8, 2501	F	F	L	FF	Y	E	1 Cu	1 Cu	57	55 1/2	62 3/4	62	14 1/2	59 1/2	60 1/2	77 1/4	148	56 3/4	51 3/4
8, 2531 Sports Coupe	F	F	L	FF	Y	E	1 Cu	3 Cu	57	55 1/2	62 3/4	62	14 1/2	60	61 1/2	77 1/4	166	56 3/4	60 1/4
8, 2531 Convertible Cpe.	F	F	L	FF	Y	E	1 Cu	1 Fl	57	48 1/2	62 3/4	49 1/2	14 1/2	60	61 1/2	77 1/4	166	56 3/4	38 1/4
8, 2502	F	F	L	FF	Y	E	1 Cu	3 Cu	57	55 1/2	62 3/4	62	14 1/2	60	61 1/2	77 1/4	148	56 3/4	59 1/2
8, 2506	F	F	L	FF	Y	E	1 Cu	3 Cu	57	55 1/2	62 3/4	62	14 1/2	60	61 1/2	77 1/2	148	56 3/4	59 1/2
Plymouth																		
6, P-22	F		En	FF	Y	E	2 FI	1 Cu	54 1/4	52 1/2	59 1/4	51 3/4	14	55 1/2	58 1/4	73	160 1/2	53 1/4	42
6, P-23	F	F	En	FF	Y	E	2 FI	1 Cu	54 1/2	54	59 1/2	56 1/2	14	55 1/2	58 1/4	73 1/2	142 1/4	53 1/4	49 1/4
Pontiac																		
6, 25, 8, 27	F	F	L	F	Y	I	2 Cu	1 Cu	54 1/2	54 1/2	60	58 1/2	14 1/2	58 1/4	59 1/4	75 1/2	131	51 1/2	44
Studebaker																		
6, 12G, V8, 3H	F	R	En	FF	Y	I	1 Cu	1 Cu	54 1/2	52	59 1/4	56 1/4	14	56 1/4	54	70 1/4	129	47 1/4	43 1/2
Willys																		
6, 585	F		En	F	Y	E	2	(f)	57	57	61	61	15	58	57	72	151 1/2	55 3/4	(g)

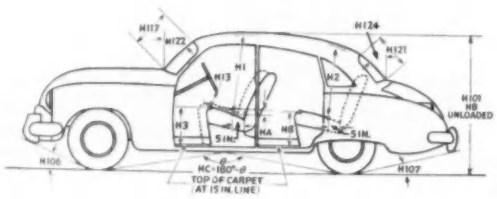
ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
(a)—41, 46, 46S and 48 models—2 piece curved.
♦—1952 data not available at time of going to press.
(b)—46, 46C, 46S, 56C, 59, 76C and 79R models—one piece curved.
(c)—B model—front.
(d)—Lid on hood over engine.
(e)—B and E models have no rear seat.
(f)—Deluxe—one piece curved, Custom—3 piece curved.
(g)—Wing—52 1/4, Ace—60 1/2.
Cu—Curved.
E—External.
En—Enamel.
F—Front.
FF—Front, full opening.
Fl—Flat.
Fu—Full opening.
I—Internal.
L—Lacquer.
N—No or none.
R—Rear.
SF—Side, full opening.
Y—Yes.

1952 PASSENGER CAR BODY DIMENSIONS—
continued

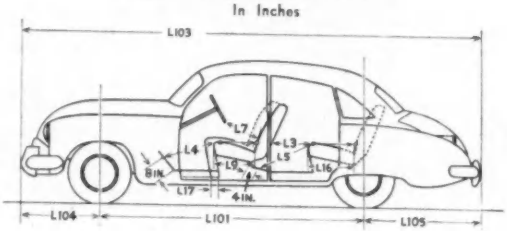
HEIGHT DIMENSIONS

In Inches



LENGTH DIMENSIONS

In Inches



HEIGHT AND LENGTH

PASSENGER CAR MAKE AND MODEL	HEIGHT DIMENSIONS: Interior H1 Front Headroom	H2 Rear Headroom	H3 Front Seat Height to Floor	H8 Rear Seat Height to Floor	H13 Steering Wheel Clearance to Seat Cushion	HEIGHT DIMENSIONS: Exterior H8 Overall Height—Unloaded	H106 Angle of Approach (Deg.)	H107 Angle of Departure (Deg.)	HC Ramp Breakover Angle (Deg.)	H117 Windshield Slant Height	H121 Backlight Slant Height	HD Minimum Road Clearance (Location and Dimension)	LENGTH DIMENSIONS: Interior L3 Rear Compartment	L4 Leg Room Front	L5 Leg Room Rear	L7 Steering Wheel Clearance	L9 Front Seat Depth	L26 Rear Seat Depth	L17 Total Adjustment of Front Seat	LENGTH DIMENSIONS: Exterior L104 Overhang Front	L105 Overhang Rear
Buick																					
8, 40	35½	35	13½	16⅛	5½	65⅛	22.8	14.7	166.0	15½	15½	6½ FSR	33	43¼	41½	12½	18⅞	18½	4	33½	49½
8, 50	36⅛	35½	11½	11½	4½	64½	21.7	14.7	166.5	16½	14	6½ FSR	35½	43¼	43¼	13½	17½	17½	4	34½	50½
8, 70	35½	34½	12½	12½	3½	65⅛	22.8	15.5	166.1	16½	14	7⅛ FSR	34	44¼	42	14⅛	17½	17½	4	34½	50½
Cadillac V8, 8237-37D	34⅛	34⅞	14½	12½	5⅛		20.0	12.5	13° 24′	17½	13½	7½ EDP	29⅛	43½	38½	14½	19⅛	19⅛	4	36½	58½
V8, 6219	35½	35⅛	14½	12½	5⅛		20.0	14.0			14⅛	7½ EDP	35½	43½	42½	14⅛	19½	19⅜	4	36½	58½
V8, 6267	34½	34½	14½	12½	5⅛		20.0	12.5			11½	7½ EDP	29⅛	43½	38½	14½	19½	19⅛	4	36½	58½
V8, 6019	35½	35⅛	14½	12½	5⅛		20.0	12.5	13° 2′		14⅛	7½ EDP	35½	43½	42½	14⅛	19½	19⅜	4	36½	58½
V8, 75	37	35	13½	12½	5½		21.0	15.0	12° 28′		12⅛	6⅜ BRS	52⅛	44⅛(a)		14½	18½	19½	4(b)	36½	53½
Chevrolet 6, 1500, 2100†	35⅜	35	14½	12½	5½	65¾	26.0	14.0	15.8	16¾	15	7⅛ UEP	31⅞	42¾	41	14½	18½	18½	4⅜	34	48½
Chrysler 6, C-51	38	36½	15	15½	5⅛	65½	18.0	15.0	14.0	16½	15⅜	7½ FSR	35⅜	41⅞	41½	13⅜	19	19	5	34½	47½
V8, C-55	38	36½	15	15½	5⅛	65½	19.0	16.0	15.0	16½	15¾	7¾ BB	35⅜	41⅞	41½	13⅜	19	19	5	34½	47½
V8, C-52	38	36½	15	15½	5⅛	65¾	19.0	15.0	13.0	16½	15¾	7½ FSR	35⅜	41⅞	41½	13⅜	19	19	5	34½	47½
V8, C-54	38	36½	15	15½	5⅛	65⅜	19.0	15.0	13.0	16½	15¾	7½ FSR	35⅜	41⅞	41½	13⅜	19	19	5	34½	47½
V8, C-53	39	35½	13½	15	7½	67⅛	20.0	16.0	14.0	16½	15¾	8½ FSR	54	43	NA	13½	20	21	4	34½	49¾
Crosley 4, CD	36	32	7½	12	8	57	26.0	23.0	146.0	12½	10	6½ CDH	13½(c)	38	34(c)	16	15	18(c)	3	31¼	37
4, VC	36	N	7½	N	9	51	40.0	30.0	157.0	11½	9	6½ CDH	N	40	N	15	15	N	3	23	29
De Soto 6, S-15, V8, S-17	38	36½	15	15½	5⅞	65½	19.0	15.0	14.0	16½	15	7½ FSR	35⅜	41⅞	41½	13⅝	19	19	5	36⅜	46½
Dodge 6, D-41	37	36¼	14¼	14⅜	5½	63⅜	19.0	15.0	14.0	16½	17½	6½ OP	31	40½	37⅝	13⅞	18	18½	5	34⅜	50½
6, D-42	38	36½	15	15½	5⅝	65	20.0	15.0	14.0	16½	15	7OP	35⅜	41⅞	41½	16	19	19	5	34⅜	48½
Ford‡ 6, 1HA, V8, 1BA																					
Henry J‡ 4, 513, 6, 514																					
Hudson 6, 4B	36½	35¼	12¼	12⅜	6⅞	61⅞	22.0	14° 35′	15.5	15½	21½	6½ BRS	32½	43¼	38	12⅝	18	18	4	35½	46½
6, 5B	36½	35¼	12¼	12⅜	6⅞	61⅞	22.0	15° 20′	15.5	15½	21½	6½ BRS	32½	43¼	38	12⅝	18	18	4	35½	47½
6, 6B, 7B & 8B	36½	35¼	12¼	12⅜	6⅞	61⅞	21° 35′	15° 20′	15.0	15½	21½	6½ BRS	32½	43¼	38	12⅝	18	18	4	37½	47½
Kaiser‡ 6, 511, 512																					
Lincoln‡ V8, 1EL, 1EH																					
Mercury‡ V8, 1CM																					
Nash‡ 6, 5210																					
6, 5240	37½	36	11¼	12⅝	6⅜	NA	25.0	14.5	167.0	16½	16½	NA	31⅜	41½	37⅜	14½	18½	18	5	34½	53½
6, 5260	37½	36	11¼	12⅝	6⅜	NA	25.5	15.5	166.5	16½	16	NA	31⅜	41½	37⅜	14½	18½	18	5	34½	53½
Oldsmobile V8, 88	35½	35¼	13½	12⅝	5⅜		22.0	13° 45′	165.5		15½	7½ FSR	32½	42½	41½	13½	18½	18½	4½	34½	49½
V8, 98	35½	35¼	13½	12⅜	5⅜		22.0	13.5	166.0		15½	7½ FSR	33½	42½	42½	13½	18½	19½	4½	34½	55½
Packard 8, 2501	36	35⅞	14	13½	5⅛	NA	21° 13′	11° 29′	16.0	17⅜	16½	NA	32⅛	43½	43½	14⅞	18½	19	4⅞	36½	53½
8, 2531 Sports Coupe	35½	34⅞	14	13½	5⅛	NA	21° 35′	11° 44′	16.0	15½	16⅝	NA	32⅛	43½	43½	14⅞	18½	19	4⅞	36½	53½
8, 2531 Convertible Cpe.	35½	34½	14	13½	5⅛	NA	21° 35′	11° 42′	16.0	15½	17	NA	32⅛	43½	43½	14⅞	18½	19	4⅞	36½	53½
8, 2502, 2506	36	35½	14	13½	5⅛	NA	21° 36′	12° 6′	12.0	17⅝	17⅝	NA	37½	43½	46½	14⅞	18½	19	4⅞	36½	55½
Plymouth 6, P-22	37⅝	36½	15	13¾	5½		19.0	15.0	14.0	16½	16¼	6½ OP	30⅜	40⅜	37⅜	14⅞	19	18½	5	36½	45½
6, P-23	38	36	15	15½	5½		21.0	16.0	14.0	16½	15½	7OP	34½	40⅜	42½	15½	19	19	5	32½	42¾
Pontiac 6, 25, 8, 27	36	35½	13½	12¼	5¼	65	21.0	14.5	152.0	16½	15½	6⅝ UEP	31½	42⅞	40½	13⅞	18½	18½	4⅛	36⅛	46½
Studebaker 6, 12G	36½	35	13	13⅝	5⅜	62½	22.0	18.0		16½	11⅜	8¾ SC	31	39¾	39½	14½	19	18	5½	36½	45½
V8, 3H Commander	36½	35	13	13⅝	5⅜	62½	24.0	19.0		16½	11¾	8¾ SC	31	39¾	39½	14½	19	18	5½	36½	45½
V8, 3H Land Cruiser	36½	35	13	13½	5¾	62½	24.0	19.0		16½	11¾	8¾ SC	32½	39¾	39½	14½	19	19	5½	36½	45½
Willys 6, 685	35½	34½	12¾	13½	5½	60	28.0	22.0	160.0	15¾	17⅝	7½ REC	27	42½	36¼	13	18	18	4	32	40½

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
(a)—Imperial—43½.
‡—1952 data not available at time of going to press.
(b)—Imperial—stationary seat.
(c)—B & E models have no rear seat.
BB—Brake booster.
BRS—Beneath rear shocks.
CDH—Center of differential housing.
EDP—Engine drain plug.
FSR—Frame side rail.
N—No or none.
NA—Not available.
OP—Oil pan.
REC—Rear engine support cross member.
SC—Second cross member.
UEP—Under exhaust pipe.

1952 PASSENGER CARS

GENERAL SPECIFICATIONS

Line Number	PASSENGER CAR MAKE AND MODEL	Wheelbase	TREAD (In.) Front	TREAD (In.) Rear	MAXIMUM OVERALL DIMENSIONS (In.) Length	Width	Height	Shipping Weight 5 Passenger, 4 Door Sedan	TRANSMISSION Conventional	Overdrive	Automatic	Tire Size	ENGINE Type	Valve Arrangement	Number of Cylinders	Bore and Stroke	Piston Displacement, Cu. In.	Standard Compression Ratio (to 1)	Maximum Bhp at Engine Rpm	Maximum Torque at Rpm	BMEP (lbs. per sq. in.)	Weight per Cubic Inch 5 Passenger, 4 Door Sedan	Weight per H.P. 5 Passenger, 4 Door Sedan	Hp. per Cu. In. Displacement	Line Number
1	Buick	8, 40	121½	59 9/64	59	204 1/2	76 41/64	63 33/64	3665	St	NA	Op	7.60/15	IL	I	8	3 7/8 x4 1/2	263.3	6.60	120-3600	215-2000	100.27	15.82	34.71	.450	1
2	.....	8, 50	(u)	59 9/64	62 13/32	(w)	80	(y)	3825	St	NA	Op	7.60/15	IL	I	8	3 7/8 x4 1/2	263.3	6.90	124-3600	220-2000	103.61	16.43	34.88	.470	2
3	.....	8, 70	(v)	59 9/64	62 45/64	(x)	80	(z)	4285	NA	NA	St	8.00/15	IL	I	8	3 7/8 x4 1/2	320.2	7.50	170-3800	280-2400	110.65	14.94	28.15	.530	3
4	Cadillac	V8, 62	126	59	63	^	80 1/2	^^	4040	NA	NA	St	8.00/15	90°V	I	8	3 1/2 x3 1/2	331.0	7.50	190-4000	322-2400	113.66	13.72	23.89	.577	4
5	.....	V8, 60	130	59	63	224 1/2	80 1/2	62 1/2	4200	NA	NA	St	8.00/15	90°V	I	8	3 1/2 x3 1/2	331.0	7.50	190-4000	322-2400	113.66	14.20	24.74	.577	5
6	.....	V8, 75	146 3/4	59	63	236 1/2	80 1/2	64 1/2	4690	St	NA	Op	8.20/15	90°V	I	8	3 1/2 x3 1/2	331.0	7.50	190-4000	322-2400	113.66	15.68	27.32	.577	6
7	Chevrolet	6, 1500	115	56 1/2	58 3/4	197 1/2	73 1/2	63 5/8	3115	St	NA	Op	6.70/15	IL	I	6	3 1/2 x3 3/4	216.5	6.60	92-3400	176-1500	98.99	16.70	30.29	.424	7
8	.....	6, 2100†	115	56 1/4	58 3/4	197 1/2	73 1/2	63 5/8	3115	St	NA	Op	6.70/15	IL	I	6	3 1/2 x3 1/2	235.5	6.70	105-3600	193-2000	98.09	15.35	34.43	.445	8
9	Chrysler	6, C-51	125 1/2	56 1/8	59 3/8	207 3/4	75 1/2	65 1/2	3840	St	NA	Op	7.60/15	IL	L	8	3 1/2 x4 3/4	264.5	7.00	119-3600	218-1600	98.98	15.65	34.79	.449	9
10	.....	V8, C-52, C-54, C-55	131 1/2 (a)	57 1/2 (b)	58 1/2 (c)	213 3/4 (d)	78 (e)	65 1/4 (f)	4205.(m)	NA	NA	St	8.20/15(n)	90°V	I	8	3 1/2 x3 1/2	331.1	7.50	180-4000	312-2000	107.64	14.21	26.14	.543	10
11	.....	V8, C-53	145 1/2	57 5/8	66	230	80 1/8	67 1/8	5360	NA	NA	St	8.90/15	90°V	I	8	3 1/2 x3 1/2	331.1	7.50	180-4000	312-2000	107.64	17.70	32.56	.543	11
12	Crosley	4, CD	80	40	40	148 1/4	50	57	1363	St	NA	NA	4.50/12	IL	I	4	2 1/2 x2 1/4	44.0	8.00	26-5200	33-3000	90.00	42.34	71.65	.590	12
13	.....	4, VC	85	40	40	137	51	51	1175	St	NA	NA	4.50/12	IL	I	4	2 1/2 x2 1/4	44.0	8.00	26-5200	33-3000	90.00	38.07	84.42	.590	13
14	De Soto	6, S-15	125 1/2	56 1/8	59 3/8	203 1/8	74 7/8	65 1/4	3540	St(q)	Op	Op(r)	7.60/15	IL	L	6	3 1/2 x4 1/2	250.6	7.00	116-3600	208-1600	101.63	16.12	34.63	.462	14
15	.....	V8, S-17	125 1/2	56 1/8	59 3/8	208 1/8	74 7/8	65 1/4	3760	St	Op	Op	7.60/15	90°V	I	8	3 1/2 x3 1/2	276.1	7.10	160-4400	250-2000	104.31	15.43	27.25	.579	15
16	Dodge	6, D-41	115	56 1/8	59	199 1/8	74	63 3/4	3140	St	NA	Op	6.70/15	IL	L	6	3 1/4 x4 1/4	230.2	7.00	103-3600	190-1200	98.44	15.81	35.34	.447	16
17	.....	6, D-42	123 1/2	56 1/8	59	206 1/8	74 1/4	65	3356	St	NA	Op	7.10/15	IL	L	6	3 1/4 x4 1/4	230.2	7.00	103-3600	190-1200	98.44	16.75	37.43	.447	17
18	Ford♣	6, 1HA	114	56	56	196 1/2	72 1/2	64 1/16	3173	St	Op	Op	6.00/16	IL	L	6	3 1/2 x4 1/2	225.9	6.80	95-3600	185-1500	92.52	16.26	38.66	.421	18
19	.....	V8, 1BA	114	56	56	196 1/2	72 1/2	64 1/16	3207	St	Op	Op	6.00/16	V	L	8	3 1/2 x3 1/4	239.4	6.80	100-3600	187-1800	91.90	15.48	37.07	.418	19
20	Henry J	4, 513	100	54	54	.....	.....	.....	2293	St	Op	NA	5.90/15	IL	L	4	3 1/16 x4 5/8	134.2	7.00	68-4000	109-1800	100.33	20.81	41.07	.506	20
21	.....	6, 514	100	54	54	.....	.....	.....	2341	St	Op	NA	5.90/15	IL	L	6	3 1/16 x3 1/2	161.0	7.00	80-3800	133-1600	103.56	17.65	35.51	.496	21
22	Hudson	6, 4B	119 7/8	58 1/2	55 1/2	201 1/2	77 1/8	60 3/4	3335	St	Op	Op	7.10/15	IL	L	6	3 1/8 x3 7/8	232.0	6.70	112-4000	175-1600	95.59	16.53	34.24	.482	22
23	.....	6, 5B, 6B	119 7/8▲	58 1/2	55 1/2	202 1/2*	77 1/8	60 3/4	3485 (f)	St	Op	Op	7.10/15	IL	L	6	3 1/8 x4 5/8	262.0	6.70	127-4000	200-1600	95.96	15.21	31.38	.484	23
24	.....	6, 7B	123 7/8	58 1/2	55 1/2	208 1/2	77 1/4	60 5/8	3600	St	Op	Op	7.10/15	IL	L	6	3 1/4 x4 1/2	308.0	7.20	145-3800	257-1800	98.12	13.31	28.28	.470	24
25	.....	8, 8B	123 7/8	58 1/2	55 1/2	208 1/2	77 1/4	60 5/8	3630	St	Op	Op	7.10/15	IL	L	8	3x4 1/2	254.0	6.70	126-4200	196-1600	95.02	16.26	32.27	.503	25
26	Kaiser	6, 511, 512	118 1/2	58	58 3/4	.....	74	.....	3126	St	Op	Op	6.70/15	IL	L	6	3 1/4 x4 1/2	226.2	7.30	115-3850	190-1800	110.30	16.03	31.53	.506	26
27	Lincoln♣	V8, 1EL	121	58 1/2	60	214 1/2	76 1/2	65 1/4	4125	St	Op	Op	8.00/15	V	L	8	3 1/16 x4 5/8	336.7	7.00	154-3800	275-1800	100.62	13.74	30.03	.457	27
28	.....	V8, 1EM	125	58 1/2	60	222 1/2	78 1/2	64 3/4	4140	St	Op	Op	8.20/15	V	L	8	3 1/16 x4 5/8	336.7	7.00	154-3600	275-1800	100.62	13.78	30.13	.457	28
29	Mercury♣	V8, 1CM	118	58	56	202	73 1/2	62 1/2	3390	St	Op	Op	7.10/15	V	L	8	3 1/16 x4	255.4	7.20	125-3700	210-2000	97.46	15.23	31.12	.439	29
30	Nash	6, 5210	100	53 5/8	53	176	73 1/2	59	1731	St	Op	Op	♦	IL	L	6	3 1/16 x3 1/4	172.6	7.25	82-3800	138-1600	99.02	12.93	27.21	.475	30
31	.....	6, 5240	114 1/2	55 1/2	58 1/2	202 1/4	78	61 3/4	1792	St	Op	Op	6.70/15	IL	L	6	3 1/16 x4 1/4	195.6	7.10	88-3800	150-1600	93.77	11.72	26.05	.449	31
32	.....	6, 5260	121 1/4	55 5/8	60 1/2	209 1/2	79	62 1/4	2173	St	Op	Op	7.10/15	IL	I	6	3 1/16 x4 5/8	252.6	7.30	120-3700	220-1600	101.69	10.56	22.28	.475	32
33	Oldsmobile	V8, Deluxe 88	120	58	59	203 1/2	75 1/2	63 1/2	3608	St	NA	Op	7.60/15	90°V	I	8	3 1/4 x3 1/2	303.7	7.50	145-3800	280-1800	105.04	13.53	26.33	.480	33
34	.....	V8, Super 88	120	58	59	203 1/2	75 1/2	63 1/2	3649	St	NA	Op	7.60/15	90°V	I	8	3 1/4 x3 1/2	303.7	7.50	160-3600	283-1800	115.90	13.66	25.93	.526	34
35	.....	V8, 98	124	58	59	213 1/2	75 1/2	63 1/2	3765	St	NA	Op	7.60/15	90°V	I	8	3 1/4 x3 1/2	303.7	7.50	160-3600	283-1800	115.90	14.04	26.66	.526	35
36	Packard	8, 200	122	59 1/2	60 3/4	212 3/4	77 5/8	62 1/4	3680	St	Op	Op	7.60/15	IL	L	8	3 1/16 x3 3/4	288.0	7.00	135-3600	230-2000	103.12	14.51	30.96	.467	36
37	.....	8, 250	122	60	61 3/4	212 3/4	77 5/8	62	3805	St	Op	Op	8.00/15	IL	L	8	3 1/16 x4 1/4	327.0	7.00	150-3600	270-2000	100.92	13.17	28.70	.456	37
38	.....	8, 300	127	62	61 3/4	217 1/4	77 5/8	62 3/4	3880	St	Op	Op	8.00/15	IL	L	8	3 1/16 x4 1/4	327.0	7.00	150-3600	270-2000	100.92	13.39	29.20	.456	38
39	.....	8, 400	127	60	61 3/4	217 1/4	77 7/8	62 3/4	4115	NA	NA	St	8.00/15	IL	L	8	3 1/16 x4 1/4	327.0	7.80	155-3600	275-2000	104.28	14.11	29.77	.474	39
40	Plymouth	6, P-22	111	55 1/8	58 1/8	188 1/2	73	63 5/8	2959	St	NA	NA	6.40/15	IL	L	6	3 1/16 x4 5/8	217.8	7.00	97-3600	175-1200	97.98	15.88	35.66	.445	40
41	.....	6, P-23	118 1/2	55 1/8	58 1/8	193 7/8	73 7/8	64 5/8	3068	St	NA	NA	6.70/15	IL	L	6	3 1/16 x4 5/8	217.8	7.00	97-3600	175-1200	97.98	16.38	36.78	.445	41
42	Pontiac	8, 25	120	58 3/8	59 3/4	202 1/2	75 1/2	63 1/2	3278	St	.....	Op	7.10/15	IL	L	8	3 1/16 x4	239.2	6.80	100-3400	189-1400	97.36	15.79	37.78	.416	42
43	.....	8, 27	120	58 3/8	59 3/4	202 1/2	75 1/2	63 1/2	3378	St	.....	Op	7.10/15	IL	L	8	3 1/16 x3 3/4	268.4	6.80	118-3600	222-2200	96.72	14.45	32.86	.439	43
44	Studebaker	6, 12G	115	56 1/2	54	197 1/8	70 1/16	61 1/4	NA	St	Op	Op	6.40/15	IL	L	6	3x4	169.6	7.00	85-4000	136-2400	99.23	.....	.....	.501	44
45	.....	V8, 3H	115†	56 1/2	54	197 1/8‡	70 1/16	61 1/4	NA	St	Op	Op	7.10/15	90°V	I	8	3 1/4 x3 1/4	232.6	7.00	120-4000	190-2000	102.15	.....	.....	.515	45
46	Willys	6, 685	108	58	57	180 7/8	72	60	2570	St	Op	NA	5.90/15	IL	F	6	3 1/8 x3 1/2	161.0	7.60	90-4400	135-2000	100.62	19.07	34.11	.559	46

ABBREVIATIONS

^—215 1/2, 220 1/2.
^^—62 1/4, 60 1/2 and 61 1/4.
♦—Powerglide chassis model available at extra cost.
†—Land Cruiser—119.
♣—1951 Specifications. 1952 data not available at time of going to press.
‡—Land Cruiser—201 1/16.
▲—6B—123 7/8.
*—6B—202 1/4.
♦—Super—5.90x15, Custom—6.40x15.
(a)—C-55—125 1/2.
(b)—C-55—56 1/8.
(c)—C-55—59 1/16.
(d)—C-55—207 3/4, C-54—213 1/8.
(e)—C-52, C-55—75 1/2.
(f)—C-55—65 1/2.
(m)—C-52 only, C-54—4315 and C-55—4010.
(n)—C-55—8.00x15.
(p)—6B—3595.
(q)—Custom—NA.
(r)—Custom—St.
(u)—121 1/2, 125 1/2.
(v)—126 11/16, 130 11/16.
(w)—206 11/16, 210 11/16.
(x)—211, 215.
(y)—61 11/16, 62 11/16.
(z)—61 11/16, 63 11/16.
CI—Cast iron.
F—Valves in block and head.
I—Valves in head.
IL—In line.
L—Valves in block.
NA—Not available.
Op—Optional.
St—Standard.

For Directory of the Manufacturers listed above, see page 338

GENERAL ENGINE DATA, PISTONS

Line Number	PASSENGER CAR MAKE AND MODEL	ENGINE: Number of Cylinders Bore and Stroke	Total Piston Displacement (cu. ins.)	Compression Ratio (to—1): Standard Head	Compression Ratio (to—1): Optional Head	Cylinders: Head Material: Standard	Cylinders: Head Material: Optional	Cylinders: Sleeves	Mounting Points: Front	Mounting Points: Rear	Taxable Horsepower	Advertised Max. Brake Hp at R.P.M.: Standard Head	Advertised Max. Brake Hp at R.P.M.: Optional Head	Max. Torque (ft. lb. at R.P.M.): Standard Head	Max. Torque (ft. lb. at R.P.M.): Optional Head	Recommended Idle Speed	PISTONS: Material	Description and Finish	Weight (Piston only in oz.)	Clearance: Top Land	Clearance: Skirt: Top	Clearance: Skirt: Bottom	Ring Groove Depth: No. 1 Ring	Ring Groove Depth: No. 2 Ring	Ring Groove Depth: No. 3 Ring	Ring Groove Depth: No. 4 Ring	Line Number
1	Buick	8, 40	263.3	6.80	7.20	CI		N	2	1	32.51	120-3600	128-3600	215-2000	225-2000	450	Ala	C, Trs, An	13.4	.023	.0018	.0012	.1650	.1650	.1650	.1650	1
2		8, 50	263.3	6.90	7.20	CI		N	2	1	32.51	124-3600	128-3600	220-2000	225-2000	450	Ala	C, Trs, An	13.4	.023	.0018	.0012	.1650	.1650	.1650	.1650	2
3		8, 70	320.2	7.50		CI		N	2	1	37.81	170-3800		280-2400		450	Ala	C, Trs, An	17.9	.030	.0020	.0014	.1820	.1820	.1820	.1820	3
4	Cadillac	V8, 62, 60, 75	331.0	7.50		CI	NA	N	2	1	46.50	190-4000	NA	322-2400	NA	430	Ala	Ts, C, Sn	18.8	.033	.0015	.0000	.1870	.1870	.1870		4
5	Chevrolet	6, 1500	216.5	6.60	NA	CI	NA	N	2	1	29.40	92-3400	NA	176-1500	NA	475	CI	Fh, O, Ss, Co	28.0	.019		.0025	.1610	.1610	.1740	N	5
6		6, 2100†	235.5	6.70	NA	CI	NA	N	2	1	30.40	105-3600	NA	193-2000	NA	440	CI	Fh, O, Ss, Co	32.0	.018		.0025	.1840	.1610	.1795	N	6
7	Chrysler	6, C-51	264.5	7.00		CI		N	1	2	28.36	119-3600		218-1600		450-500	Ala	Us, C, Tp	18.5	.030	.0007		.1765	.1765	.1780	.1760	7
8		V8, C-52, C-53, C-54, C-55	331.1	7.50		CI		N	2	2	46.51	180-4000		312-2000		450-500	Ala	St, Ss, C, Tp	20.8	.022	.0010		.2040	.2040	.1980		8
9	Crosley	4, CD, VC	44.0	8.00	10.00	CI	CI	N	2	1	10.00	26-5200	28-5200	33-3000		450-500	Ala	AO, C	6.5	.017	.0030	.0030	.1315	.1315	.1525	.1525	9
10	De Soto	6, S-15	250.6	7.00		CI		N	1	2	28.36	116-3600		208-1600		450-500	Ala	Us, C, Tp	18.5	.030	.0007		.1765	.1765	.1780	.1780	10
11		V8, S-17	276.1	7.10		CI		N	2	2	42.05	160-4400		250-2000		450-500	Ala	Ts, C, Sb, Ss, Pp	18.3	.022	.0015		.1930	.1930	.1920		11
12	Dodge	6, D-41, D-42	230.2	7.00		CI		D	1	2	25.35	103-3600		290-1200		450-500	Ala	Us, C, Tp	16.0	.030●	.0037		.1690	.1690	.1720	.1720	12
13	Ford♦	6-1HA	225.9	6.80							26.10	95-3600		185-1500			Ala	St, O, Tp, At	18.1	.024		.0009	.1870	.1870	.1920	.1920	13
14		V8, 1BA	239.4	6.80							32.50	100-3800		187-1800			Ala	St, O, At, Pp, Sh		.024		.0008	.1810	.1810	.1989	.1864	14
15	Henry J.	4, 513	134.2	7.00							15.60	68-4000		109-1800			Ala	O, TBp	12.7	.018		.0030	.1600	.1600	.1700		15
16		6, 514	161.0	7.00							23.40	80-3800		133-1600			Ala	O, TBp, Ts	10.8	.020		.0021	.1600	.1600	.1700		16
17	Hudson	6, 4B	232.0	6.70	7.20	CI	AI	N	2	1	30.45	112-4000		175-1600		540-560	Ala	V,C	18.4	.027	.0025	.0015	.1950	.1950	.1950	.1950	17
18		6, 5B, 6B	262.0	6.70	7.20	CI	AI	N	2	1	30.45	127-4000		200-1600		540-560	Ala	V,C	18.1	.027	.0025	.0015	.1950	.1950	.1950	.1950	18
19		6, 7B	308.0	7.20	6.70	AI	CI	N	2	1	34.68	145-3800		257-1800		540-560	Ala	V,C	18.6	.029	.0025	.0015	.2090	.2090	.2090	.2090	19
20		8, 8B	254.0	6.70	7.20	CI	AI	N	2	1	28.80	128-4200		198-1800		540-560	Ala	V,C	10.8	.022	.0020	.0010	.1450	.1450	.1450	.1450	20
21	Kaiser	6, 511, 512	226.2	7.30							26.30	115-3650		190-1800			Ala		15.3	.027		.0010	.1740	.1740	.1820	.1820	21
22	Lincoln♦	V8, 1EL, 1EH	336.7	7.00							39.20	154-3600		275-1800			Ala	At, St, Sp	20.0	.023		.0001	.1840	.1840	.1740	.1920	22
23	Mercury♦	V8, 1CM	255.4	7.20							32.50	125-3700		210-2000			Ala	At, St, Sp, Tp	11.9	.022		.0003	.1840	.1840	.1740	.1920	23
24	Nash	6, 5210	172.6	7.25	7.60	CI	CI	N	2		23.44	82-3800	NA	138-1600	NA	500	Ala	Ne, Tp		.019	.0015	.0018	.1690	.1690	.1730	.1730	24
25		6, 5240	195.6	7.10	7.35	CI	CI	N	2	2	23.44	88-3800	NA	150-1600	NA	500(b)	Ala	Ne, Tp		.019	.0015	.0018	.1690	.1690	.1730	.1730	25
26		6, 5280	252.6	7.30	8.25	CI	AI	N	2	2	29.40	120-3700	NA	220-1600	NA	500(b)	Ala	Ne, Tp		.023	.0018	.0021	.3740	.3740	.3650	.3650	26
27	Oldsmobile	V8, Deluxe 88	303.7	7.50		CI		N	1	2	45.00	145-3600		260-1800		425(a)	Ala	At, C, Tp, Se	20.2	.029	.0010	.0007	.2000	.2000	.1930		27
28		V8, Super 88, 98	303.7	7.50		CI		N	1	2	45.00	160-3600		283-1800		425(a)	Ala	At, C, Tp, Se	20.2	.029	.0010	.0007	.2000	.2000	.1930		28
29	Packard	8, 200	288.0	7.00	7.50	CI	CI	N	2	1	39.20	135-3600	138-3600	230-2000	235-2000	400	Ala	At, Sp, Tp	19.5	.030		.0007	.1700	.1700	.1880		29
30		8, 250, 300	327.0	7.00	7.80	CI	CI	N	2	1	39.20	150-3600	155-3600	270-2000	275-2000	400	Ala	At, Sp, Tp	19.5	.030		.0007	.1700	.1700	.1880		30
31		8, 400	327.0	7.80	7.00	CI	CI	N	2	1	39.20	155-3600	150-3600	275-2000	270-2000	400	Ala	At, Sp, Tp	19.5	.030		.0007	.1700	.1700	.1880		31
32	Plymouth	6, P-22, P-23	217.8	7.00		CI		N	1	2	25.35	97-3600		175-1200		450-500	Ala	Us, C, Tp	16.0	.030	.0007		.1690	.1690	.1720	.1720	32
33	Pontiac	6, 25	239.2	6.80	7.70	CI	CI	N	1	2	30.46	100-3400	102-3400	189-1400	194-1400	450-475	CI	CNA, EP	27.0	.023	.0015	.0015	.1815	.1815	.1945		33
34		8, 27	268.4	6.80	7.70	CI	CI	N	1	2	36.45	118-3600	122-3600	222-2200	227-2200	450-475	CI	CNA, EP	26.7	.023	.0015	.0015	.1615	.1615	.1923		34
35	Studebaker	6, 12G	169.6	7.00	7.50	CI	CI	N	2	1	21.60	85-4000		138-2400		550	L	C, Ts	9.1	.017	Sel		.1635	.1485	.1685		35
36		V8, 3H	232.6	7.00	7.50	CI	CI	N	2	1	36.40	120-4000		190-2000		550	L	C, Ts	13.7	.019	Sel		.1843	.1843	.1917		36
37	Willys	6, 685	161.0	7.60		CI		N	2	1	23.44	90-4400		135-2000		550	Ala	TBp	10.9	.020	.0021	.0021	.1550	.1550	.1680		37

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.

♦—1951 Specifications. 1952 data not available at time of going to press.

(a)—Standard transmission only; Hydra-matic, 350 (in drive).

(b)—Standard transmission only; Hydra-matic, 375.

Al—Aluminum. Ala—Aluminum alloy. An—Anodized. AO—Aluminum oxide. At—Auto-thermic. C—Cam ground. CI—Cast Iron. CNA—Chrome nickel alloy. Co—Wear resistant coating. D—Dry. EP—Electro plated. Fh—Flat head. L—Lynite. N—No or none. NA—Not available. Ne—Nelson design. O—Oval. Sb—Steel band. Sel—Selective feeler fit. Sh—Spherical head. Sn—Stannate. Sp—Split skirt. Ss—Slipper skirt. St—Steel strut. TBp—Tin or brass plated. Tp—Tin plated. Ts—T slot. Trs—Transverse slot. Us—U slot. V—V rib type.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

PISTON RINGS, PISTON PINS, AND CONNECTING RODS

Line Number	PASSENGER CAR MAKE AND MODEL	Bore	PISTON RINGS: Type—Oil or Compression No. 1	No. 2	No. 3	No. 4	No. Rings Above Piston Pin	Compression: Material	Coating	Width	Gap	Maximum Wall Thickness	Oil: Material	Coating	Width	Gap	Maximum Wall Thickness	Location of Expanders	PISTON PIN: Material	Length	Diameter	Type: Locked In—	Bushing: Location	Bushing: Material	Clearance: In Piston	Clearance: In Rod	Direction Offset in Piston	CONNECTING RODS: Material	Weight (oz.)	Length (center to center)	Bearing: Material	Bearing: Type (cast or removable)	Bearing: Effective Length	Bearing: Clearance	Bearing: End Play	Line Number
1	Buick 8, 40, 50	3 3/8	C	C	O	O	4	I	L	1/16	.015	.155	(g)	L	1/16	(h)	(j)	N	1115	2.6880	.8127	R	N		.0003		Ri	SF	28.0	7 5/16	Dsb	RP	1.030	.0011	.007	1
2	8, 70	3 7/16	C	C	O	O	4	I	L	1/16	.015	.165	(g)	L	1/16	(h)	(k)	N	1115	3.0620	.8747	R	N		.0003		N	SF	30.2	8 1/4	Dsb	RP	1.306	.0011	.007	2
3	Cadillac V8, 62, 60, 75	3 1/2	C	C	O		3	I	L	1/16	.015	.184	I	L	1/16	.015	.150	Oi	1045	3.0930	1.0000	R	N		.0001	.0000	(m)	1041	24.0	6 5/8	Dsb	RP	.896	.0020	.011(b)	3
4	Chevrolet 6, 1500	3 1/2	C	C	O	N	3	I	Co	1/8	.010	.155	I	N	1/16	.010	.155	N	CS	3.1500	.8648	R	P	Br	(n)	N	N	DFS	31.2	6 1/2	Lb	CI	1.076	.0008	.008	5
5	6, 2100†	3 5/8	C	C	O	N	3	I	Co	1/8	.012	.176	I	N	1/16	.010	.160	N	CS	3.1500	.8648	R	P	Br	(n)	N	N	DFS	31.2	6 1/2	Lb	CI	1.076	.0008	.008	6
6	Chrysler 6, C-51	3 1/2	C	C	O	O	4	I	(a)	1/16	.011	.172	I	N	1/16	.011	.155	N	HMS	2.8750	.8593	F	R	BrS	.0003	.0002	N	HMFS	32.4	7 1/8	Bsb	RP	1.060	.0010	.008	7
7	V8, C-52, C-53, C-54, C-55	3 1/2	C	C	O		3	I	(a)	1/16	.015	.191	I	N	1/16	.015	.150	Oi	HMS	3.1406	.9843	F	R	BrS	.0003	.0002	Ri	HMFS	25.2	6 1/2	Bsb	RP	.885	.0010	.008(b)	7
8	Crosley 4, CD, VC	2 1/2	C	C	O	O	3	I	FC	1/16	.012	.120	I	Fe	1/16	.011	.117	N	1020	2.260	.6251	F	R	BrS	.0003	.0003	N	3140	9.6	4 1/2	Bsb	RP	.870	.0022	.017	8
9	DeSoto 6, S-15	3 1/8	C	C	O	O	4	I	T	1/16	.011	.172	I	N	1/16	.011	.155	N	HMS	2.8750	.8593	F	R	BrS	.0003	.0002	N	HMFS	32.4	7 1/8	Bsb	RP	1.060	.0010	.008	9
10	V8, S-17	3 1/4	C	C	O		3	I	T	1/16	.015	.176	I	N	1/16	.015	.140	Oi	HMS	3.0650	.9220	F	R	BrS	.0003	.0002	R	HMFS	22.8	6 1/8	Bsb	RP	.8125	.0010	.010	10
11	Dodge 6, D-41, D-42	3 1/4	C	C	O	O	4	I	T	1/16	.011	.162	I	N	1/16	.011	(c)	Oi	HMS	2.750	.8593	F	R	BrS	.0003	.0002	N	HMFS	27.9	7 1/16	Bsb	RP	.930	.0010	.008	11
12	Ford 6, 1HA	3 1/8	C	C	O	O				1/16	.014	(†)				1/16	.015	.150	N		2.905	.8502	F			.0002			HMFS		8 1/4	Sab	RP	1.400	.0018	.005	12
13	V8, 1BA	3 1/8	C	C	O	O				1/16	.012	(u)				1/16	.012	.147	N		2.835	.7502	F			.0002			HMFS		7	Sab	RP	1.755	.0018	.013(b)	13
14	Henry J 4, 513	3 1/2	C	C	O					1/16	.010	.135				1/16	.010	.140	N		2.781	.8118	R						1141	40.0	9 1/8	Bsb	RP	1.312	.0015	.007	14
15	6, 514	3 1/2	C	C	O					1/16	.012	.139				1/16	.010	.140			2.656	.7496	R			.0001			1035	22.5	6 1/2	Bsb	RP	1.125	.0015	.005	15
16	Hudson 6, 4B, 5B, 6B	3 1/8	C	C	O	O	3	I	TC	1/8	.010	.178	I	(w)	(x)	.010	(y)	N	8620	2.937	.9680	F	R	BrS	.0002	PF	N	1041	32.4	8 1/16	Bsb	RP	1.378	.0010	.010	16
17	6, 7B	3 1/2	C	C	O	O	3	I	(a)	1/8	.010	.191	I	(w)	(x)	.010	(y)	N	8620	2.937	.9680	F	R	BrS	.0002	PF	N	1041	32.4	8 1/16	Bsb	RP	1.378	.0010	.010	17
18	8, 8B	3	C	C	O	O	3	I	Gr	1/8	.007	.133	I	N	(x)	.007	.135	N	8620	2.438	.7503	F	R	BrS	.0002	PF	N	1041	31.4	8 1/8	Bsb	CI	1.179	.0005	.010	18
19	Kaiser 6, 511, 512	3 1/8	C	C	O	O				1/16	.012	.164				1/16	.012	.149	N		2.760	.8592	F			.0002			1035	29.6	7	Bsb	RP	1.312	.0012	.008	19
20	Lincoln† V8, 1EL, 1EH	3 1/2	C	C	O					1/16	.014	.149				1/16	.014	.142	Oi		2.842	.7502	F			.0003			HMFS	27.1	8 1/8	CL	RP	2.250	.0011	.010(b)	20
21	Mercury† V8, 1CM	3 1/8	C	C	O	O				1/16	.012	.154				1/16	.014	.142	N		2.842	.7501	F			.0002			HMFS	18.7	7	CL	RP	1.755	.0018	.013(b)	21
22	Nash 6, 5210	3 1/2	C	C	O	O	4	I	TC	1/16	.015	.156	(g)	□□		1/16	++	^^	N	1016	2.750	.8593	R	N	N	.0002		Ri	DFS	25.0	6 1/2	Bsb	RP	.960	.0015	.010	22
23	6, 5240	3 1/2	C	C	O	O	4	I	(a)	✱	.015	.156	(g)	♦		1/16	++	†	N	1016	2.750	.8593	R	N	N	.0002		Ri	DFS	25.0	6 1/2	Bsb	RP	.960	.0015	.010	23
24	6, 5260	3 1/2	C	C	O	O	4	I	(a)	1/16	□	.175	(g)	♦		1/16	▲	††	N	1016	2.824	.8750	F	R	Br		.0002	Ri	DFS	36.3	8 3/4	Bsb	RP	1.272	.0015	.010	24
25	Oldsmobile V8, 88, 98	3 1/4	C	C	O		3	I	(p)	1/8	.012	.187	I	N		1/16	.012	.156	Oi	1117	3.0180	.9835	F	R	Br	.0001	.0004	Ri	1335	29.6	6 1/2	Dsb	RP	.881	.0019	.007	25
26	Packard 8, 200, 250, 300, 400	3 1/2	C	C	O		3	I	Fe	1/16	.012	.160	I	N-B		1/16	.011	.157	Oi	S	3.0158	.8750	F	R	Br	PF	PF	N	SF	36.5(d)	7 1/16(e)	SC	RP	1.140	.0015	.007	26
27	Plymouth 6, P-22, P-23	3 1/4	C	C	O	O	4	I	(a)	1/16	.012	.162	I	N		1/16	.012	.150	N	HMS	2.7500	.8593	F	R	BrS	.0002	.0001	N	HMFS	31.1	7 1/16	Bsb	RP	.930	.0010	.008	27
28	Pontiac 6, 25	3 1/8	C	C	O		2	I	TC	1/16	.009	.175	I	TC		1/16	.009	.158		HMS	3.0620	.9375	P	R	AB		.0006		HMFS	37.0(f)	7 1/8	Bsb	RP	1.218	.0011	.009	28
29	8, 27	3 5/8	C	C	O		2	I	TC	1/16	.011	.153	I	TC		1/16	.011	.153		HMS	2.8750	.9375	P	R	AB		.0005		HMFS	31.8(f)	7 1/8	Bsb	RP	1.000	.0010	.009	29
30	Studebaker 6, 12G	3	C	C	O		3	I	Fe	(q)	.012	(r)	I	N-B		1/16	.012	.139	Oi	5115	2.6250	.7500	R			.0002			1041	19.0	6 1/16	Bsb	RP	.905	.0011	.007	30
31	V8, 3H	3 5/8	C	C	O		3	I	Gr	1/8	.012	.164	I	Gr		1/16	.012	.137	Oi	5115	2.6750	.8750	R			.0002			1141	23.7	6 1/2	Bsb	RP	.843	.0011	.010	31
32	Willys 6, 585	3 1/16	C	C	O		3	I	(a)	1/16	.011	.144	I	N		1/16	.011			1016	2.6562	.7497	R			PF		N	1141	22.5	6 1/16	Bsb	RP	.899	.0013	.007	32

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
□—Upper, .011; lower, .012.
□□—Upper, tin; lower, Lubrite.
♦—Upper, Ferrox; lower, Lubrite.
++—Upper, .015; lower, .007.
^—Upper, .012; lower, .008.
^^—Upper, .145; lower, .155.
†—Upper, .144; lower, .155.
‡—1951 Specifications. 1952 data not available at time of going to press.

††—Upper, .157; lower, .155.
(a)—Upper, chromium; lower, tin.
(b)—Total two rods.
(c)—Upper, .137; lower, .150.
(d)—250, 300, 400—36.
(e)—250, 300, 400—7 1/16.
(f)—Weight includes connecting rod assembly with bearing.
(g)—Upper, cast iron; lower, steel.
(h)—Upper, .015; lower, .001.
(j)—Upper, .142; lower, .149.
(k)—Upper, .155; lower, .164.
(m) 1/16 toward maximum thrust side.
(n)—Slip fit.
(p)—Upper, chrome; lower, Lubrite.
(q)—Upper, 3/16; lower, 1/8.
(r)—Upper, .130; lower, .135.
(s)—Upper, chrome; lower, Ferrox.
(t)—Upper, .165; lower, .150.
(u)—Upper, .159; lower, .147.
(w)—Upper, tin; lower, Granoseal.
(x)—Upper, 1/16; lower, 1/8.
(y)—Upper, .158; lower, .152.
(z)—Upper, .165; lower, .151.

AB—Aluminum bronze.
B—Blued.
Br—Bronze.
BrS—Bronze on steel.
Bsb—Babbitt, steel backed.
C—Compression.
CI—Cast in.
CL—Copper lead, steel backed.
Co—Wear resistant coating.
CS—Chrome steel.
DFS—Drop forged steel.
Dsb—Durex, steel backed.

F—Floating.
FC—Ferrox finish, chrome plated on outside width.
Fe—Ferrox.
Gr—Granoseal.
HMFS—High manganese forging steel
HMS—High manganese steel.
I—Iron.
L—Lubrite.
Lb—Lead babbitt.
N—No or none.
O—Oil.

Oi—Oil ring.
P—Piston.
PF—Push fit.
R—Rod.
Ri—Right.
RP—Removable precision.
S—Steel.
SC—Special composite construction.
SF—Steel forging.
Sob—Special alloy, steel backed.
T—Tin.
TC—Tin or Cadmium.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

CRANKSHAFTS, CAMSHAFTS

Line Number	PASSENGER CAR MAKE AND MODEL	CAMSHAFT: Material	Weight (lb.)	Vibration Dampener Type	End Thrust Taken Up by Bearing	Crankshaft End Play	CAMSHAFT: Main Bearing: Material	Type (cast or removable)	Clearance	Journal Diameter and Bearing Effective Length: No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	Connecting Rod Journal Crankpin Diameter	CAMSHAFT: Material	Bearings: Material	Bearings: Number	Type of Drive: Gear or Chain	Crankshaft Gear or Sprocket Material	Camshaft Gear or Sprocket Material	Timing Chain: Make	Timing Chain: No. of Links	Timing Chain: Width	Timing Chain: Pitch	Line Number
1	Buick 8, 40, 50	SF	93.0	StF	C	.016	Dsb	RP	.0013	2.562x1.266	2.562x1.031	2.562x1.547	2.562x1.031	2.562x1.781			2.1257	SF	Bsb	5	Ch	1140	CI	LB	49	½	.500	1
2	8, 70	SF	116.4	StF	C	.006	Dsb	RP	.0013	2.562x1.281	2.625x .969	2.687x1.469	2.750x .969	2.812x2.469			2.2487	SF	Bsb	5	Ch	1140	CI	LB	90	½	.500	2
3	Cadillac V8, 62, 60, 75	1145	61.5	RA	R	.003	Dsb	RP	.0020	2.500x1.000	2.500x1.063	2.500x1.063	2.500x1.063	2.500x1.875			2.2500	CI	Bsb	5	Ch	1118	1115	LB	46	½	.500	3
4	Chevrolet 6, 1500	DFS	70.0	RA	3	.006	Bsb	RP	.0018	2.684x1.906	2.715x1.437	2.746x1.437	2.777x2.093				2.3115	DFS	Bsb	4	G	S	BFC	N				4
5	6, 2100†	DFS	71.0	RA	3	.006	Bsb	RP	.0018	2.684x1.906	2.715x1.437	2.746x1.437	2.777x2.093				2.3115	DFS	Bsb	4	G	S	BFC	N				5
6	Chrysler 6, C-51	DFS	NA	DDT	R	.005	Bsb	RP	.0011	2.500x1.155	2.500x1.155	2.500x1.155	2.500x1.589				2.1250	CI	Bsb(a)	4	Ch	HMS	CI		48	1	.500	6
7	V8, C-52, C-53, C-54, C-55	DFS	NA	DDT	C	.004	Bsb	RP	.0010	2.500x .875	2.500x .875	2.500x .870	2.500x .875	2.500x1.595			2.2500	SCI	Bsb	5	Ch	HMS	CI		68	1¼	.375	7
8	Crosley 4, CD, VC	Gun	14.0	N	R	.006	Bsb	RP	.0023	1.375x1.312	1.375x .670	1.375x .870	1.375x .870	1.500x1.499			1.3745	1045	Ala	5	G	1040	1040	N				8
9	De Soto 6, S-15	DFS	NA	DDT	R	.005	Bsb	RP	.0010	2.500x1.155	2.500x1.155	2.500x1.155	2.500x1.589				2.1250	SCI	Bsb(a)	4	Ch	HMS	CI		48	1	.500	9
10	V8, S-17	DFS	NA	DDT	C	.005	Bsb	RP	.0010	2.375x .812	2.375x .812	2.375x .807	2.375x .812	2.375x1.532			2.0620	SCI	Bsb	5	Ch	HMS	CI		68	1¼	.375	10
11	Dodge 6, D-41, D-42	DFS	NA	N(b)	R	.005	Bsb	RP	.0010	2.500x1.204	2.500x1.000	2.500x1.000	2.500x1.589				2.0625	SCI	Bsb(a	4	Ch	HMS	CI		48	1	.500	11
12	Ford♣ 6, 1HA				R	.006	Sab	RP	.0012	2.873x1.312	2.873x1.360	2.873x1.360	2.873x1.590				2.2980				G	CI	BFC					12
13	V8, 1BA			N	R	.004	Sab	RP	.0018	2.498x1.681	2.498x1.682	2.498x2.255					2.1380				G	CI	BFC					13
14	Henry J. 4, 513			N	F		Bsb	RP	.0022	2.333x1.925	2.333x2.000	2.333x1.938					1.9380				G	CI	BFC					14
15	6, 514				F		Bsb	RP	.0020	2.250x1.306	2.250x1.250	2.250x1.250	2.250x1.594				1.8750				G	111	BFC					15
16	Hudson 6, 4B	1045	80.5	RA	3	.006	Bsb	RP	.0010	2.500x1.438	2.500x1.375	2.500x1.625	2.500x1.750				2.1250	CI	Bsb	4	Ch	S	CI	M	60	1	.375	16
17	6, 5B, 6B	1045	85.5	RA	3	.006	Bsb	RP	.0010	2.500x1.438	2.500x1.375	2.500x1.625	2.500x1.750				2.1250	CI	Bsb	4	Ch	S	CI	M	60	1	.375	17
18	6, 7B	1045	87.5	RA	3	.006	Bsb	RP	.0010	2.500x1.438	2.500x1.375	2.500x1.625	2.500x1.750				2.1250	CI	Bsb	4	Ch	S	CI	M	60	1	.375	18
19	8, 8B	1045	79.3	RA	C	.009	Bbb	RP	.0010	2.281x1.625	2.321x1.375	2.343x1.875	2.375x1.375	2.406x2.000			1.9375	CI	Bbb	5	G	CI	Ala					19
20	Kaiser 6, 511, 512				R		Bsb	RP	.0014	2.375x1.281	2.375x1.530	2.375x1.530	2.375x1.635				2.0620				Ch	1020	CI	LB-M	46	1	.500	20
21	Lincoln♣ V8, 1EL, 1EH				R	.006	CL	RP	.0014	2.873x2.874	2.873x2.874	2.873x2.874					2.4000				G	CI	CI					21
22	Mercury♣ V8, 1CM				R	.004	Bsb	RP	.0018	2.499x1.676	2.499x1.677	2.499x2.254					2.1380				G	CI	BFC					22
23	Nash 6, 5210	DFS	64.3	RF	F	.006	Bsb	RP	.0018	2.484x1.156	2.484x1.125	2.484x1.125	2.484x1.531				2.0945	CI	Bsb	4	Ch	1117	CI	M	60	1	.315	23
24	6, 5240	DFS		RF	F	.006	Bsb	RP	.0018	2.484x1.156	2.484x1.125	2.484x1.125	2.484x1.531				2.0945	CI	Bsb	4	Ch	1117	CI	M	60	1	.375	24
25	6, 5260	DFS	70.5	RF	C	.006	Bsb	RP	.0012	2.484x1.250	2.484x .938	2.484x .938	2.484x1.750	2.484x .938	2.484x .938	2.484x1.625	2.0005	CI	Bsb(h)	4	Ch	1117	CI	M	60	1	.375	25
26	Oldsmobile V8, 88, 98	1145	65.5	N	R	.006	Dsb	RP	.0018(d)	2.500x1.094	2.500x1.125	2.500x1.125	2.500x1.125	2.625x1.880			2.2500	CI	Bsb	5	Ch	1140	CI	LB-M	(e)	(f)	(g)	26
27	Packard 8, 200, 250, 300	SF	96.0(c)	FS	C	.006	SC	RP	.0015	2.746x1.218	2.746x1.062	2.746x1.593	2.746x1.062	2.746x2.062			2.2500	CI	SC	5	Ch	S	CI	M	58	1	.375	27
28	8, 400	SF	106.0	FS	C	.006	SC	RP	.0015	2.746x1.218	2.746x1.062	2.746x1.062	2.746x1.062	2.748x1.593	2.746x1.062	2.746x1.062*	2.2500	CI	SC	5	Ch	S	CI	M	58	1	.375	28
29	Plymouth 6, P-22, P-23	DFS	NA	N	R	.005	Bsb	RP	.0010	2.500x1.204	2.500x1.000	2.500x1.000	2.500x1.589				2.0620	SCI	Bsb(a)	4	Ch	HMS	CI		48	1	.500	29
30	Pontiac 6, 25	DFS	86.6	HB	3	.006	Bsb	RP	.0013	2.500x1.250	2.531x1.187	2.593x1.125	2.625x1.562				2.1250	DFS	Bsb	4	Ch	S	AI	M	56	1	.375	30
31	8, 27	DFS	81.4	HB	4	.006	Bsb	RP	.0013	2.375x1.250	2.406x1.187	2.437x1.437	2.468x1.125	2.625x1.562			2.0000	DFS	Bsb	5	Ch	S	AI	M	56	⅝	.375	31
32	Studebaker 6, 12G	DFS	47.5	RD	F	.005	Bsb	RP	.0015	2.437x1.312	2.437x1.375	2.437x1.375	2.437x1.781				1.8125	CI	Bsb	4	G	CI	BFC					32
33	V8, 3H	1046	52.8	RD	F	.005	Bsb	RP	.0017	2.500x1.312	2.500x1.125	2.500x1.125	2.500x1.125	2.500x1.781			2.0000	CI	Bsb	5	G	CI	BFC					33
34	Willys 6, 685	1040	49.3	DDT	F	.005	Bsb	RP	.0020	2.250x .957	2.250x1.062	2.250x1.062	2.250x1.405				1.8750	CI	Bsb	4	G	CI	BFC					34

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.

*—No. 8 bearing, 2.746x1.062. No. 9 bearing, 2.746x2.062.

(a)—No. 4 bearing is of cast iron.

(b)—D-42 has damped dynamic torsional vibration absorber.

(c)—250 and 300—104.0.

(d)—Rear main only—.0019.

(e)—Link Belt, 48; Morse, 64.

(f)—Link Belt, ⅜; Morse, ⅜.

(g)—Link Belt, .500; Morse, .375.

(h)—No. 1 bearing is of cast iron.

♣—1951 Specifications. 1952 data not available at time of going to press.

AI—Alloy iron.
Ala—Aluminum alloy.
Bbb—Babbitt, bronze backed.
BFC—Bakelite and fabric composition with steel hub.
Bsb—Babbitt, steel backed.
C—Center. **Ch**—Chain.
CI—Cast iron.
DDT—Damped dynamic torsional.
DFS—Drop forged steel.
Dsb—Durex, steel backed.
F—Front.
FS—Fluid suspension.
G—Gear. **Gun**—Gunite.
HB—Harmonic balancer.
HMS—High manganese steel.
LB—Link Belt Co.
LB-M—Link Belt or Morse.
M—Morse Chain Co.
N—No or none.
NA—Not available.
R—Rear.
RA—Rubber absorber.
RD—Rubber mounted disc.
RF—Rubber and friction absorber.
RP—Removable precision.
S—Steel.
SC—Special composite construction.
SCI—Special cast iron.
SF—Steel forging.
Ssb—Special alloy, steel backed.
StF—Steel flywheel.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

VALVES, INTAKE AND EXHAUST

Line Number	PASSENGER CAR MAKE AND MODEL	Hydraulic Lifters	Special Provision for Valve Rotation (Intake or Exhaust)	Rocker Ratio—to-1	INTAKE												EXHAUST												Line Number
					Material	Overall Length	Actual Overall Head Diameter	Seat		Stem		Lift (In.)	Springs				Material	Overall Length	Actual Overall Head Diameter	Seat		Stem		Lift (In.)	Springs				
								Angle (Deg.)	Insert Material	Diameter (In.)	Guide Clearance		Pressure (lb.)		Length (in.)					Angle (Deg.)	Insert Material	Diameter (In.)	Guide Clearance		Pressure (lb.)		Length (in.)		
													Valve Closed	Valve Open	Valve Closed	Valve Open									Valve Closed	Valve Open	Valve Closed	Valve Open	
1	Buick 8, 40	N(d)	N	1.5	NCS	5.109	1.531	45	N	.372	.002	.348	32½(e)	77(e)	1.938(e)	1.594(e)	NAS	5.109	1.344	45	N	.371	.003	.348	32½(e)	77(e)	1.938(e)	1.594(e)	1
2	8, 50	Y	N	1.5	NCS	5.109	1.531	45	N	.372	.002	.348	52(f)	100(f)	1.938(f)	1.594(f)	NAS	5.109	1.344	45	N	.371	.003	.348	52(f)	100(f)	1.938(f)	1.594(f)	2
3	8, 70	Y	N	1.5	NCS	5.250	1.781	45	N	.372	.002	.348	52(f)	100(f)	1.938(f)	1.594(f)	NAS	5.250	1.437	45	N	.371	.003	.348	52(f)	100(f)	1.938(f)	1.594(f)	3
4	Cadillac V8, 62, 60, 75	Y	N	1.5	3140	4.549	1.750	44	N	.344	.002	.327	60	135	1.696	1.366	Eat	4.543	1.562	44	N	.341	.002	.327	60	135	1.696	1.366	4
5	Chevrolet 6, 1500	N	N	1.5	SCS	6.275	1.640	30	N	.341	.002	.294	58	132	1.821	1.505	SCS	4.917	1.500	45	N	.340	.003	.312	58	132	1.821	1.505	5
6	6, 2400†	Y	N	1.5	SCS	6.379	1.937	30	N	.341	.002	.328	65	160	1.821	1.505	SCS	4.917	1.500	45	N	.340	.003	.326	65	160	1.821	1.505	6
7	Chrysler 6, C-51	N	N	....	SCS	4.781	1.718	45	N	.341	.002	.375	42½	115	1.750	1.375	SCS	4.781	1.531	45	SA	.340	.003	.375	42½	115	1.750	1.375	7
8	V8, C-52, C-53, C-54, C-55	Y	N	1.5	SCS	5.000	1.812	45	N	.372	.002	.378	48½(a)	134(a)	1.687(a)	1.281(a)	SCS	4.906	1.500	45	SA	.371	.003	.382	48½(a)	134(a)	1.687(a)	1.281(a)	8
9	Crosley 4, CD, VC	N	E	N	3140	3.934	1.172	45	N	.314	.002	.235	44½	88	1.313	1.078	NCS	3.934	1.047	45	N	.313	.003	.235	44½	88	1.313	1.078	9
10	De Soto 6, S-15	N	N	N	SCS	4.781	1.718	45	N	.341	.002	.375	42½	115	1.750	1.375	SCS	4.781	1.531	45	SA	.340	.003	.375	42½	115	1.750	1.375	10
11	V8, S-17	Y	N	1.5	SCS	4.796	1.750	45	N	.373	.002	.361	40½(g)	105(g)	1.687(g)	1.312(g)	SCS	4.750	1.407	45	SA	.372	.003	.361	40½(g)	105(g)	1.687(g)	1.312(g)	11
12	Dodge 6, D-41, D-42	N	N	....	AS	4.781	1.531	45	N	.340	.002	.359	42½	115	1.750	1.375	SCS	4.781	1.406	45	SA	.340	.003	.359	42½	115	1.750	1.375	12
13	Ford♣ 6, 1HA	N	....	....	SCS	5.360	1.647	45	N	.341	....	.336	50	100	2.110	1.750	CN	5.360	1.510	45	....	.341	....	.332	50	100	2.110	1.750	13
14	V8, 1BA	N	....	....	SCS	4.819	1.510	45	N	.341	....	.293	41½	82	1.890	1.600	CN	4.816	1.510	45	....	.341	....	.289	41½	82	1.890	1.600	14
15	Henry J. 4, 513	N	....	....	3140	5.891	1.531	45	N	.373	....	.351	53	120	2.109	2.500	3140	5.812	1.469	45	N	.372	....	.351	53	120	2.109	1.750	15
16	6, 514	N	....	....	3140	4.562	1.375	45	N	.341	....	.294	50	105	1.625	1.891	3140	4.562	1.281	45	N	.340	....	.300	50	105	1.625	1.329	16
17	Hudson 6, 4B, 5B, 6B, 7B	N	Y	....	8645	5.130	1.831	45	N	.342	.002	.346	77	159	2.188	1.842	2112	5.730	1.556	45	N	.341	.003	.346	77	159	2.188	1.842	17
18	8, 8B	N	N	....	8645	5.094	1.500	45	N	.341	.002	.343	40	80	2.000	1.656	SCS	5.094	1.375	45	N	.339	.004	.343	40	80	2.000	1.656	18
19	Kaiser 6, 511, 512	N	....	....	8640	5.190	1.520	30	N	.341	....	.352	51	113	1.672	1.312	SCS	5.200	1.298	45	N	.339	....	.332	51	113	1.672	1.312	19
20	Lincoln♣ V8, 1EH, 1EL	Y	....	....	8654	5.715	1.800	45	N	.341	....	.350	65	146	1.680	2.080	CN	5.714	1.510	45	....	.340	....	.350	65	146	1.680	1.320	20
21	Mercury♣ V8, 1CM	N	....	....	SCS	4.820	1.510	45	N	.341	....	.323	38½	82	2.130	1.810	CN	4.815	1.510	45	....	.341	....	.323	38½	82	2.130	1.810	21
22	Nash 6, 5210, 5240	N	N	....	3150	4.781	1.469	45	N	.341	.003	.300	39	78½	1.750	1.438	3150	4.781	1.281	45	N	.341	.003	.300	39	78½	1.750	1.438	22
23	6, 5260	N	N	1.5	3150	5.484	1.750	30	N	.373	.003	.262	55½	149	1.813	1.438	3150	5.484	1.469	45	N	.373	.003	.263	55½	149	1.813	1.438	23
24	Oldsmobile V8, 88, 98	Y	N	1.8	3140	4.917	1.750	45	N	.342	.003	.366	90	156	1.829	1.463	SCS	4.941	1.437	45	N	.393	.004	.366	90	156	1.829	1.463	24
25	Packard 8, 200, 250, 300, 400	Y(b)	Y	....	CM	5.875	1.671	30	N	.341	.002	.342	63	140	1.750	1.406	A	5.875	1.437	45	N	.339	.004	.342(c)	63	140	1.750	1.406	25
26	Plymouth 6, P-22, P-23	N	N	....	AS	4.781	1.531	45	N	.340	.002	.375	42½	112½	1.750	1.375	SCS	4.781	1.406	45	SA	.340	.003	.375	42½	112½	1.750	1.375	26
27	Pontiac 6, 25	N	N	....	SCS	5.718	1.593	30	N	.310	.002	.300	60	101	1.906	1.593	SCS	5.718	1.468	45	N	.310	.002	.300	60	101	1.906	1.593	27
28	8, 27	N	N	....	SCS	5.531	1.468	30	N	.310	.002	.300	63	105	1.718	1.406	SCS	5.531	1.343	45	N	.310	.002	.300	63	105	1.718	1.406	28
29	Studebaker 6, 12G	N	N	....	NCS	4.343	1.343	45	....	.312	.003	.343	51½	98	1.656	1.312	2112	4.343	1.281	45	....	.312	.003	.343	51½	98	1.312	1.312	29
30	V8, 3H	N	N	1.5	NCS	5.171	1.406	45	....	.343	.003	.359	70	158	2.031	1.671	2112N	5.171	1.281	45	....	.343	.003	.359	70	158	1.671	1.671	30
31	Willys 6, 685	N	E	1.3	3140	4.531	1.750	45	N	.374	.002	.260	73	153	1.690	1.400	Un	4.625	1.281	45	N	.340	.004	.300	50	105	1.625	1.328	31

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.

(a)—Outer valve spring only; inner valve spring 14 lb., 1.562 in. with valve closed; 39½ lb., 1.156 in. with valve open.

(b)—Optional at extra cost on 200.

(c)—250, 300 and 400—.337.

(d)—Yes with Dynaflow transmission.

♣—1951 Specifications. 1952 data not available at time of going to press.

(e)—Outer valve spring only; inner valve spring 20½ lb., 1.656 in. with valve closed; 51 lb., 1.313 in. with valve open.

(f)—Outer valve spring only; inner valve spring 24 lb., 1.660 in. with valve closed; 52 lb., 1.320 in. with valve open.

(g)—Outer valve spring only; inner valve spring 13 lb., 1.562 in. with valve closed; 37½ lb., 1.187 in. with valve open.

A—Austenitic.
AS—Alloy steels.
CN—Chrome nickel alloy.
E—Exhaust valve only.
Eat—Eatonite.
N—No or none.
NAS—Nickel alloy steel.
NCS—Nickel chrome steel.
SA—Special alloy.
SCS—Silicon chromium steel.
Un—Uniloy.
Y—Yes.

For Directory of the Manufacturers listed above, see page 338

VALVE TIMING, LUBRICATION, AND EXHAUST SYSTEMS

Line Number	PASSENGER CAR MAKE AND MODEL	VALVE TIMING: Operating Tappet Clearance Intake	Operating Tappet Clearance Exhaust	Tappet Clearance for Timing Intake	Tappet Clearance for Timing Exhaust	Timing Mark Location	TIMING Intake Opens (°B.T.C.)	TIMING Intake Closes (°A.B.C.)	TIMING Exhaust Opens (°B.B.C.)	TIMING Exhaust Closes (°A.T.C.)	LUBRICATION SYSTEM: Lubrication—Type Main Bearings	Connecting Rods	Piston Pins	Camshaft Bearings	Tappets	Timing Gear or Chain	Cylinder Walls	Oil Pump Type	Normal Oil Pressure Lbs. at M.P.H.	Oil Pressure Gauge—Type	Type Oil Intake	Oil Filter Type	Capacity of Crankcase, Less Filter	Range in Oil Grade Recommended (S.A.E. Nos.) Summer to Subzero	Oil—Type Recommended	EXHAUST SYSTEM: Muffler Type	Exhaust Pipe Diameter (in.)	Tail Pipe Diameter	Line Number
1	Buick 8, 40	.015H	.015H	.004(e)	.004(e)	N	13(f)	68(f)	55(f)	22(f)	P	P	P	P	P	No	S, No	G	35-35	E	F	FF	5½	20W- 5W		St	2	2	1
2	8, 50, 70	N	N	.004(e)	.004(e)	N	14	71	56	25	P	P	P	P	P	No	S, No	G	35-35	E	F	FF	7	20W- 5W		St	2½	2	2
3	Cadillac V8, 52, 60, 75	N	N			VD	14	56	48	24	P	P	S	P	P	No	No	G	33-30		F	PF	5	20W- 5W	Pre	Re	2⅜	1¾	3
4	Chevrolet 6, 1500	.006H	.013H		0	Fly	1	39	42	9	P	Ps	S	P	MP	Pr	S	G	(g)	M	Sr	N	5	20W- 5W	Pre	Re	1⅞	1½	4
5	6, 2100♦	0	0		0	Fly	16	48	46° 30′	17° 30′	P	Ps	S	P	MP	Pr	S	G	(g)	M	Sr	N	5	20W- 5W	Pre	Re	2	1½	5
6	Chrysler 6, C-51	.008H	.010H	.014C	.014C	VD	12	44	50	6	P	P	S	P	S	MF	MJ	R	50-45	M	F	FF	5	30- 5W	N	Re	2	1¾	6
7	V8, C-52, C-53, C-54, C-55	0	0	VTS	VTS	VD	16	57	49	15	P	P	S	P	MP	MF	MJ	R	60-50	M	F	FF	5	30- 5W	N	A	2½	2	7
8	Crosley 4, CD, VC	.005C	.008C	.005	.008	Fly	5	50	50	5	P	P	S	P	S	S	S	G	43-30	M	Sr	PF	2	30- 5W	N	St	1¼	1	8
9	De Soto 6, S-15	.008H	.010H	.014	.014	VD	12	44	50	6	P	P	S	P	S	MF	MJ	R	50-45	M	F	PF	5	30- 5W	N	Re	2	1¾	9
10	V8, S-17	0	0	VTS	VTS	VD	12	52	50	14	P	P	S	P	MP	MF	MJ	R	50-45	M	F	Sh	5	30- 5W	N	St	2½	2	10
11	Dodge 6, D-41, D-42	.008H	.010H	.014	.014	CP(a)	8	36	37	7	P	P	S	P	S	No	S	R	45-45	M	F	N(b)	5	30- 5W	N	Re	2	1¾	11
12	Ford♦ 6, 1HA	.014C	.018C	.014	.018		11	41	48	10	P	P		P		P		G	45-35				5						12
13	V8, 1BA	.014C	.018C	.014	.018		5	44	48	3	P	P		P		P		G	40-35				5						13
14	Henry J. 4, 513	.016	.016	.020	N		9	50	47	12	P	P		P		P		G	35-30		F		4						14
15	6, 514	.016	.016	.020			5	44	47	12	P	P		P		P		G	35-30		F		5						15
16	Hudson 6 4B 5B, 6B, 7B	.008H	.010H	.008	.010		27	92	67	40	P	P	S	P	P	S	No	R	40-30	E	F		7	30-10W		Re	2	2	16
17	8, 8B	.008H	.010H	.008	.010		10° 40′	60	50	18° 44′	S	S	S	S	S	S	S	PI	3-	E	F		7	30-10W		Re	2	2	17
18	Kaiser 6, 511, 512	.014C	.014C	.014	.014		10	60	55	10	P	P		P	P	P		G	35-30		F		5½						18
19	Lincoln♦ V8, 1EH, 1EL	.000	.000	.006	.006		5	52	48	8	P	P		P	P	P		G	50-40				6½						19
20	Mercury♦ V8, 1CM	.012C		.015	.014		10	50	50	10	P	P		P		P		G	57-40				6						20
21	Nash 6, 5210	.016C	.018C	.019	.019	VD	6	50	46	10	P	P	S	P	S	S	S	R	50-30	E	Sr		5	20-10W	Rg	Re	1¾	1½	21
22	6, 5240	.015H	.015H	.019	.019	VD	6	50	46	10	P	P	S	P	S	S	S	R	50-30	E	Sr		5	20-10W	Rg	Re	1¾	1½	22
23	6, 5260	.015H	.018H	.023	.023	VD	12° 30′	51° 30′	53° 30′	10° 30′	P	P	P	P	S	S	P	R	50-30	E	Sr		6	20-10W	Rg	Re	2	1¾	23
24	Oldsmobile V8, 88, 98	N	N	.003(e)	.003(e)	CP	13° 30′	50° 30′	49° 30′	14° 30′	P	P	S	P	P	P	P	G	40-50	M	Sr	FF	5	20- 5W	HD	Re	2	2	24
25	Packard 8, 200	.007H	.010H	.012	.015	N	15	45	50	9	P	P	P	P	P	Pe	MP	G	40-30	E	F	PF(c)	7	20- 5W		St	2¼	2	25
26	8, 250, 300, 400	AA	AA	NU	NU	N	15	43	53	4	P	P	P	P	P	Po	MP	G	40-30	E	F	PF	7	20- 5W		St	2¼	2	26
27	Plymouth 6, P-22, P-23	.010H	.010H	.014	.014	CP	12	44	50	6	P	P	S	P	S	No	S	R	45-45	M	F	N(b)	5	30- 5W	N	Re	2	1¾	27
28	Pontiac 6, 25, 8, 27	.011H	.013H	.015C	.015C	HB	5	39	45	5	P	P	P	P	S	MJ	S	G	40-40	E	Sr		5	20W 10W	Rg	St	2	1¾	28
29	Studebaker 6, 12G	.016C	.016C	.020	.020	VD	15	49	54	10	P	P	S	P	P	P	DJ	G	40-28	M	F	PF	5	30- 5W		St	1¾	1½	29
30	V8, 3H	.015C	.015C	.020	.020	VD	11	53	50	14	P	P	S	P	P	P	DJ	G	40-28	M	F	PF	6	30- 5W		St	2	1¾	30
31	Willys 6, 685	.018	.016	.027	.020	VD	9	50	47	12	P	P	S	P	S	No	S	G	35-35	E	F	N	5	30- 5W		Re	1⅜	1½	31

ABBREVIATIONS

♦—Powerglide chassis model available at extra cost.
(a)—D-42—Vibration damper.
(b)—D-42 and P-23—Partial flow.
(c)—Optional on 200.
♦—1951 Specifications. 1952 data not available at time of going to press.

(e)—Off seat.
(f)—Same as Series 50 and 70 when hydraulic lifters are used.
(g)—14 lbs. @ 2000 Engine R.P.M.
A—Arvin.
AA—Automatic adjustment.
C—Cold.
CP—Crankshaft fan pulley.
DJ—Directed jet.
E—Electric.
F—Floating.
FF—Full flow.
Fly—Flywheel.
G—Gear.
H—Hot.
HB—Harmonic balancer.
HD—Heavy duty.
M—Mechanical.
MF—Metered flow.
MJ—Metered jet.
MP—Metered pressure.
N—No or none.
No—Nozzle.
NU—Not used.
P—Pressure.
PF—Partial flow.
PI—Plunger type.
Po—Positive.
Pr—Pressure spray.
Pre—Premium.
Ps—Pressure stream.
R—Rotary.
Re—Reverse flow.
Rg—Regular.
S—Spash.
Sh—Shunt type.
Sr—Stationary.
St—Straight through.
VD—Vibration damper.
VTS—Valve train solid.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

FUEL AND COOLING SYSTEMS

Line Number	PASSENGER CAR MAKE AND MODEL	FUEL SYSTEM: Fuel Tank Capacity (gal.)	Fuel Pump: Type	Fuel Pump: Location	Fuel Pump: Pressure Range (lb.)	Fuel Pump: Vacuum Booster	Carburetor: Make	Carburetor: Model Number	Carburetor: Number Used	Carburetor: Type	Carburetor: Manifold Heat Control	Carburetor: Automatic Choke—Type	Carburetor: Air Cleaner Type: Standard	Carburetor: Air Cleaner Type: Optional	COOLING SYSTEM: Radiator Cap Relief Valve Pressure (lb.)	Thermostat: Type	Thermostat: Starts to Open at (Deg.)	By-pass Recirculation Type	Radiator Core Type	Capacity: With Heater (qt.)	Capacity: Without Heater (qt.)	Full Length Water Jackets	Water Ahead Around Cylinder	Radiator Hose: Lower: Number and Type	Radiator Hose: Lower: Inside Diameter and Length	Radiator Hose: Upper: Number and Type	Radiator Hose: Upper: Inside Diameter and Length	Radiator Hose: By-Pass: Number and Type	Radiator Hose: By-Pass: Inside Diameter and Length	Line Number
1	Buick 8, 40	19	M	RFE	5	Sd	S-C	(h)	1	DD	A	I	OB		7	BP	152	E	Cel	13½(k)	12(m)	N	Y	1Mo	1⅜	1Mo	1⅜	1S	1¾	1
2	8, 50	19	M	RFE	5	Sd	S-C	(h)	1	DD	A	I	OB		7	BP	152	E	Cel	13½(k)	12(m)	N	Y	1Mo	1⅜	1Mo	1⅜	1S	1¾	2
3	8, 70	19	M	RFE	5	Sd	S-C	(j)	1	DFB	A	I	OB		7	BP	152	E	Cel	19½	18	N	Y	1Mo	1⅜	1Mo	1⅜	1S	1¾	3
4	Cadillac V8, 62, 60, 75	20	M	RFE	4-5¼	Sd	C-R	(n)	1	DFB	A	I	OB		13	Ch	166	In	FT	20	19	Y	Y	1Mo	1¾-8 7/16	1Mo	1¾-8 7/16			4
5	Chevrolet 6, 1500	16	M	RFE	3½-4½	Op	R	7004447 #	1	DS	A	N	OM	OB	4	Ch	151	N	Cel	16	15	Y	Y	1Mo	1½-16 5/16	1Mo	1½-13½	N		5
6	6, 2100†	16	M	RFE	3½-4½	Op	R	7003526	1	DS	A	I	OM	OB	4	Ch	151	N	Cel	16	15	Y	Y	2Mo	1½-4 11/16	1Mo	1½-6 3/16	N		6
7	Chrysler 6, C-51	17	M	RFE	3½-5	N	BB	E-9C1	1	DS	A	I	OB		7	BP	159½	E	Cel	16	15	Y	N	1Mo	1½-4 11/16	1Mo	1½-6 3/16	N		7
8	V8, C-52, C-53, C-54, C-55	20	M	RFE	3½-5	N	C	WCD-830-S	1	DD	A	I	OB		7	BP	159½	E	FT	26	25	Y	Y	1Mo	1¾	1Mo	1¾	1S	1x1½	7
9	Crosley 4, CD, VC	6½	M	RFE	3¼	N	C	WO-870-S	1	DS	N	N	DF	OB	4¼	Ch	155	N	FT	5	4	N	Y	1Mo	1¼-17	1Mo	1¼-12¾	(q)		8
10	De Soto 6, S-15	17	M	RFE	3½-5	N	BB	E9C1(g)	1	DS	A	I	OB		7	BP	159½	E	Cel	16	15	Y	N	1Mo	1½	1Mo	1¾	1Mo	1	9
11	V8, S-17	17	M	RFE	3½-5	N	C	WCD-834-S(r)	1	DD	A	I	OB		7	BP	159½	E	FT	23	22	Y	Y	1Mo	1¾	1Mo	1¾	1Mo	1	10
12	Dodge 6, D-41, D-42	17	M	RFE	4-5½	N	St	BXVD-3-93	1	DS	A	EM	OB		7	BP	159½	In	Cel	15	14	Y	N	2Mo	1½	1Mo	1¾	N		11
13	Ford♣ 6, 1HA	16	M				Hol	847-FS		DS	A								FT		17½	Y	Y	S	1½-15	S	1½-9½			12
14	V8, 1BA	16	M				Own	8BA		DD	A								FT		22	Y	Y	St	1¾-6	S	1¼-14½			13
15																														14
16							C	YF		DS	A																		15
17	Henry J. 4, 513	13	M				C	YF		DS	A																			16
18	Hudson 6, 4B	13	M				C	YF		DS	A																			17
19	6, 5B, 6B	20	M	RFE	4-5	Op	C	M-729-SZ	1	DS	A	I	Dry	OB	7	BP	152½	In	FT	19½	18½	Y	Y	2S	1¾-4	1Mo	1½-12½			18
20	6, 7B	20	M	RFE	4-5	Op	C	M-729-SZ	1	DD	A	I	Dry	OB	7	BP	152½	In	FT	19½	18½	Y	N	2S	1¾-4	1Mo	1½-12½			19
	8, 8B	20	M	RFE	4-5	Op	C	M-729-SZ	1	DD	A	I	Dry	OB	7	BP	152½	E	FT	19½	18½	N	N	2S	1¾-4	1Mo	1½-12½	1Mo	1	20
21	Kaiser 6, 511, 512	17	M				C	WGD		DD	A							N	Cel		13½	Y	Y	Mo	1½	Mo	1½			21
22	Lincoln♣ V8, 1EL	19½	M				Hol	885-FFC		DD	A								Cel		34½	Y	Y	S	1¾-5½	2St	1½-(t)			22
23	V8, 1EH	21½	M				Hol	885-FFC		DD	A								Cel		34½	Y	Y	S	1¾-5½	2St	1½-(t)			23
24	Mercury♣ V8, 1CM	19	M				Hol	885-FFC		DD	A								FT		22	Y	Y	S	1¾-5½	St	1¼-15/16			24
25	Nash 6, 5210	20	M		4-5½	(u)	C	YF	1	DS	N	I	Dry	OB	7	Ch	170	N	FT	12	11	Y	N	1Mo	1¼	1Mo	1½	N		25
26	6, 5240	20	M		4-5½	(v)	C	YF	1	DS	N	I	Dry	OB	7	Ch	170	N	FT	15		Y	N	1Mo	1¼	1Mo	1½	N		26
27	6, 5260	20	M		4-5½	(v)	C	WA	1	SS	N	I	Dry	OB	7	Ch	170	N	FT	18		Y	Y	1Mo	1¼	1Mo	1¾	N		27
28	Oldsmobile V8, Deluxe 88	18	M	RFE	4-5	Sd	R	BB	1	DD	A	I	Dry	OB	7	BP	151	In	Cel	22½	21½	Y	Y	1Mo	1¾-11½	1Mo	1½	N		28
29	V8, Super 88, 98	18	M	RFE	4-5	Sd	C-R	(S)	1	DFB	A	I	Dry	OB	7	BP	151	In	Cel	22½	21½	Y	Y	1Mo	1¾-11½	1Mo	1½	N		29
30	Packard 8, 200, 250, 300, 400	20	M	RFE	4-5	Sd	C	WGD-784S(d)	1	DD	A	I	OM(e)	OB	7	Ch	161	N	FT	20	20	Y	Y	1Mo(f)	1¾(g)	1Mo	1¾			30
31	Plymouth 6, P-22, P-23	17	M	RFE	4-5½	N	BB	D8H2	1	DS	A	EM	OB		7	BP	159½	In	Cel	14	13	Y	N	1Mo	1½	1Mo	1¾			31
32	Pontiac 6, 25	17½	M	RFE		Sd	R	8C	1	DS	A	I	OC	OB	7	BP	151	In	Cel	20	18	Y	N	1Mo	1¾-17¾	1Mo	1¾-13¾			32
33	8, 27	17½	M	RFE		Sd	C	WCD-719SA	1	DD	A	I	OC	OB	7	BP	151	In	Cel	21	19	Y	N	1Mo	1¾-15 5/16	1Mo	1¾-8 1/16			33
34	Studebaker 6, 12G	18	M	RFE	4-5	N	C	WE-715-S	1	DS	A	I	OF	OB	7	Ch	159½	N	Cel	11½	10	Y	N	1Mo	1¼	1Mo	1¼			34
35	V8, 3H	18	M	TFE	4-5	N	St	AAUVB-26	1	DD	A	I	OF	OB	7	Ch	159½	In	Cel	18¾	17¼	Y	Y	1Mo	1¼	1Mo	1¼			35
36	Willys 6, 685	18	M	LFE	3½-4½	Op	C	YS-924-S	1	DS		N	Dry	OB	7	Ch	151	In	Cel	12	11	Y	N	Mo	1½	Mo	1½			36

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
(a)—Custom—E9A1.
(d)—250 300 and 400—WGD-928S.
(e)—250, 300 and 400—Oil bath.
(f)—400—one moulded and one straight.
(g)—400—moulded, 1¾; straight, 1¾ x 3¾.
♣—1951 Specifications. 1952 data not available at time of going to press.

(h)—Stromberg—AAUVB-267, Carter—WCD-8828.
(j)—Stromberg—4AUV-267, Carter—WCFB-8948.
(k)—15 when equipped with Dynaflow transmission.
(m)—13½ when equipped with Dynaflow transmission.
(n)—Carter—WCFB-8968, Rochester—4-GC
(q)—Water pump hose; one moulded, 1⅛ x 5½.
(r)—WCD884-SA used on later cars.
(s)—Carter—WGD, WCFB; Rochester—4GC.
(t)—Left—7, Right—8⅞.
(u)—Standard on models equipped with overdrive.
(v)—Standard on models equipped with overdrive or Hydra-Matic.
A—Automatic.

BB—Ball and Ball.
BP—By-pass.
C—Carter Carburetor Co.
Cel—Cellular.
Ch—Choke.
C-R—Carter or Rochester.
DD—Downdraft dual.
DF—Dry felt.
DFB—Downdraft four barrel.
DS—Downdraft single.
E—External.

EM—Automatic electric or manifold.
FT—Fin and tube.
Hol—Holley Carburetor Co.
I—Integral.
In—Internal.
LFE—Left front of engine.
M—Mechanical.
Mo—Molded.
N—No or none.
OB—Oil bath.
OC—Oil crimped Copper.

OF—Oil coated fibre.
OM—Oil coated mesh.
Op—Optional.
R—Rochester Products.
RFE—Right front of engine.
S—Straight.
S-C—Stromberg or Carter.
Sd—Standard.
SS—Side inlet single.
St—Stromberg Carburetor Co.
TFE—Top front of engine.
Y—Yes.

For Directory of the Manufacturers listed above, see page 338

DRIVE BELTS, FAN, AND ELECTRICAL SUPPLY SYSTEM

Line Number	PASSENGER CAR MAKE AND MODEL	DRIVE BELTS: Fan: Number Used	Fan: Angle of V (deg.)	Fan: Outside Length (in.)	Fan: Width (in.)	Generator: Angle of V (deg.)	Generator: Outside Length (deg.)	Generator: Width (in.)	Battery: Make	Battery: Model	Battery: S.A.E. Designation	Battery: Location	Battery: Terminal Grounded	ELECTRICAL SUPPLY SYSTEM: Generator: Make	Generator: Model	Generator: Type	Generator: Ratio—Gen. to Cr'k rev. (To-1)	Regulator: Make	Regulator: Model	Regulator: Type	Regulator: Cut-out Relay: Closing Voltage at Generator R.P.M.	Regulator: Cut-out Relay: Reverse Current to Open (amp.)	Regulator: Regulated: Voltage	Regulator: Regulated: Current	Minimum Generator R.P.M. Required	Voltage Test Conditions: Temperature (deg.)	Voltage Test Conditions: Load	Voltage Test Conditions: Other	Line Number
1	Buick 8, 40, 50	1	(u)	(u)	5/8	(b)			DR	15E8W	2E	UR	N	DR	1102779	SW	2.14	DR	1118729	CV	5.9-6.7-850	-1-6	7.2-7.7	45-51	2400	150	8-10 amp		1
2	8, 70	1	(u)	(u)	7/8	(b)			DR	17E8W	2E	UR	N	DR	1102779	SW	2.14	DR	1118729	CV	5.9-6.7-850	-1-6	7.2-7.7	45-51	2400	150	8-10 amp		2
3	Cadillac V8, 62, 60	1	40	57	5/8	(b)			DR	K4W	2H	UR	N	DR	1102781	SW	2.17	DR	1118725	CV	5.9-6.8	0-4	7.0-7.5	45-51	3500	H	8-10 amp	FR	3
4	V8, 75	1	40	57	5/8	(b)			DR	K4W	2H	UR	N	DR	1102781	SW	2.17	DR	1118725	CV	5.9-6.8	0-4	7.0-7.5	45-51	3500	H	8-10 amp	FR	4
5	Chevrolet 6, 1500, 2100†	1	35	42 7/8	11/16	(b)			DR	15AA8-W	1M	UR	N	DR	1100013	SW	1.83	DR	1118720	CV	6.4-800	0-4	7.4	35	2400	H			5
6	Chrysler 6, C-51	1	36	49	5/8	(b)			W-AL	HW-2-120	2H	UL	P	AL	GGW-6001	SW	1.96	AL	VBE-6001A	CV	6.4-7-960	4-6	7.1-7.4	45-57	1000	70	10 amp		6
7	V8, C-52, C-54, C-55	1	38	38	5/8	36°	41	5/8	W-AL	MW-2-135R	2H	UL	P	AL	GGU-6001	SW	1.96	AL	VAV-6001B	CV	6.4-7-960	4-6	7.1-7.4	60-62	850	70	10 amp		7
8	V8, C-53	2	36	38	5/8	36°	42 7/8	5/8	W-AL	MW-2-135R	2H	UL	P	AL	GGJ-6003	SW	1.96	AL	VBF-6001	CV	6.4-7-960	4-6	7.1-7.4	55-72	720	70	10 amp		8
9	Crosley 4, CD, VC	1	34	34	11/16	(b)			AL	IMS-65	1M	UL(w)	P	AL	GDZ-4806	SW	1.00	AL	VRP-4004F2	CV	6.4-380	4-6	7.35	34-38	720	70	10 amp	MO	9
10	De Soto 6, S-15	1	38	49	5/8	(b)			W-AL	(j)	2H	UL	P	AL	GGW-6001J	SW	1.96	AL	VBE-6001A	CV	6.4-7-1000	4-6	7.4-7.7	45-57	1000	H			10
11	V8, S-17	1	38	38	5/8	36°	38	5/8	W-AL	(j)	2H	UL	P	AL	GGW-6001K	SW	1.84	AL	VBE-6001A	CV	6.4-7-1000	4-6	7.4-7.7	45-57	1000	H			11
12	Dodge 6, D-41, D-42	1	36	49	5/8	(b)			W-AL	(K)	1H	UL	P	AL	GGW-6001	SW	1.96	AL	VBE-6001A	CV	6.4-7-960	4-6	7.1-7.4	45-57	1000	70	10 amp		12
13	Ford‡ 6, 1HA		40	41 1/2	5/8				Var			UH	P	Own	OHA	SW					6-6.6	8	7.2-7.6						13
14	V8, 1BA		38	41 3/4	5/8				Var			UH	P	Own	8BA	SW					6-6.6	8	7.2-7.6						14
15	Henry J 4, 513		42 1/2	44 1/2	11/16				W-AL			UH	P	AL	GDZ-6001E	SW					6.4-7	4-5	7.4						15
16	6, 514		40 1/2	37 1/2	11/16				W-AL			UH	P	AL	GDZ-6001E	SW					6.4-7	4-5	7.4						16
17	Hudson 6, 4B, 5B, 6B, 7B	1	47	41 3/16	11/16	(b)			Nat	2LS100	2L	UL	P	AL	GDZ-6001B	SW	1.82	AL	VRP-6101B	CV	6.7-920	NA	7.4	40	1940	70			17
18	8, 8B	1	47	40 7/8	11/16	(b)			Nat	2LS100	2L	UL	P	AL	GDZ-6001B	SW	1.82	AL	VRP-6101B	CV	6.7-920	NA	7.4	40	1940	70			18
19	Kaiser 6, 511, 512		36	41	5/8				AL			UH	P								6-6.8	-	6.9-7.5						19
20	Lincoln‡ V8, 1EL, 1EH		38	42 1/4	5/8				EX			UH	P	Own	8EL	SW					6-6.6		7.2-7.6						20
21	Mercury‡ V8, 1CM		38	41 1/2	5/8				EX			UH	P	Own	8 BA	SW					6-6.6		7.2-7.6						21
22	Nash 6, 5210	1	38	40 1/8	11/16	(b)			AL	CT1-13	1H	UH	P	DR	1102776	SW	1.92	DR	1118731	CV	6.2-1050	4-6			625	H	8-10 amp		22
23	6, 5240	1	38	40 3/4	11/16	(b)			AL	CT1-13	1M	UH	P	DR	1102777	SW	1.92	DR	1118732	CV	6.2-1225	4-6			625	H	8-10 amp		23
24	6, 5260	1	38	40 1/2	11/16	(b)			AL	CT1-15	1H	UH	P	DR	1102777	SW	1.92	DR	1118732	CV	6.2-1225	4-6			625	H	8-10 amp		24
25	Oldsmobile V8, 88, 98	1	36	57 1/4	5/8	(b)			DR	17K4W	2H	UL	N	DR	1102780	SW	2.24	DR	1118725	CV	6.2-6.7	0-4	7.2-7.4	45	2400	H	8-10 amp		25
26	Packard 8, 200, 250, 300	1	40	41	5/8	(b)			W-AL	(m)	NA	UL	P	AL-DR	(p)	SW	2.16	AL-DR	(p)	CV	(r)	3	7.4	45	(S)	70	45 amp		26
27	8, 400	1	40	41	5/8	(b)			W-AL	(n)	NA	UL	P	AL	GGW-6003A	SW	2.16	AL	VBE-6102A	CV	6.5-7-350	3	7.4	45	2440	70	45 amp		27
28	Plymouth 6, P-22, P-23	1	36	49	5/8	(t)			W-AL	(t)	1M	UL	P	AL	GGW-6001K	SW	1.82	AL	VBE-6001A	CV	6.4-7-960	4-6	7.1-7.4	45-57	1000	70	10 amp		28
29	Pontiac 6, 25, 8, 27	1	34	40	11/16	(b)			DR	15E6W	2E	UL	N	DR	1102789	SW	1.79	DR	1118725	CV	5.9-6.8	NA	7.4	45	2160	H	38.71 amp		29
30	Studebaker 6, 12G	1	44	40 1/2	11/16	(b)			W	HDW-1-100	NA	UL	P	AL	GGW-4801A	SW	1.70	AL	VBE-6101A	CV	6.3-6.9	-1	7.0-7.7	45	2500	70	10 amp	3500*	30
31	V8, 3H	1	38	56	5/8	(b)			W	HDW-1-100	NA	UL	P	DR	1102779	SW	1.80	DR	1118730	CV	6.1-7.0	-1	7.2-8.1	45	2400	70	10 amp	3500*	31
32	Willys 6, 685	1	40	40 1/2	5/8	(b)			W-AL	PN-15	1M	UR	N	AL	GDZ-6001D	SW	1.50	AL	VRP-6003A	Vib	6.3-6.8-1000	4.1-4.8	7.4	35	2150	70	17 amp	17*	32

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
*—In r.p.m.'s.
‡—1951 Specifications. 1952 data not available at time of going to press.

(b)—See fan belt.
(j)—HW-2-120C or 2H-120-B.
(k)—HW-1-105-C or 1H-105-D.
(m)—SW-2L-100 or 2L-100.
(n)—HW-2F-120 or 2FH-120.
(p)—GGW-6003A or 1102778.
(q)—VBE-6102A or 1118726.
(r)—AL-6.5-7 at 300-400; DR-6.5-7 at 200-400.
(s)—AL-2440, DR-2400.
(t)—HW-1-100 or 1M-100-D.
(u)—Designed to fit pulleys.
(w)—VC under hood, right side.
amp—Amperes.
AL—Electric Auto-Lite Co.
CV—Current and voltage control.
DR—Delco-Remy Div.
EX—Essex Wire Co.
FR—Fixed resistance.
H—Hot.
MO—Maximum output.
N—Negative.
NA—Not available.
Nat—National Battery Co.
P—Positive.
SW—Shunt wound.
UH—Under hood.
UL—Under hood, left side.
UR—Under hood, right side.
Var—Various.
Vib—Vibrator.
W—Willard Storage Battery Co.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

STARTING AND IGNITION SYSTEMS

Line Numbers	PASSENGER CAR MAKE AND MODEL	STARTING SYSTEM: MOTOR											STARTING SYSTEM: CONTROL		STARTING SYSTEM: DRIVE				IGNITION SYSTEM: COIL				IGNITION SYSTEM: DISTRIBUTOR								Line Numbers
						Lock Test			No Load Test								Number Teeth				Amps.				Spark Advance Data (at distributor shaft)						
		Make	Model	Engine Cranking Speed (RPM)	Test Conditions	Amps	Volts	Torque (ft. lb.)	Amps	Volts	RPM (min.)	Switch	Starting Procedure	Engagement—Type	Pinion Meshes	Pinion	Flywheel	Flywheel Tooth Face Width	Make	Model	Engine Stopped	Engine Idling	Make	Model	Centrifugal Advance (Averages) Start (RPM)	Centrifugal Advance (Averages) Maximum Degrees (at RPM)	Vacuum Advance Start (in Hg.)	Vacuum Advance Max. deg. (@ in. Hg.)	Breaker Gap (in.)	Cam Angle (deg.)	Breaker Arm Tension (oz.)	
1	Buick 8, 40, 50	DR	1107097	90		525	3.37	12	65	5.67	5000	S	Dap	Oc	F	9	146	.545	DR	1115328	4.5	2.50	DR	1110632	0°-248	13°-1675	5-7	7°-13	.018	(k)	21	1
2	8, 70	DR	1107981	90		600	3.00	16	65	5.67	5500	S	Dap	Oc	F	9	186	.670	DR	1115328	4.5	2.50	DR	1110632	0°-248	13°-1675	5-7	7°-13	.018	(k)	21	2
3	Cadillac V8, 62, 60, 75	DR	1107969			600	3.00	14	80	5.67	5500	S	Tik	S	F	9	145	.500	DR	1115380	5.0	2.50	DR	1110629	0°-400	16°-1850	7-9	9½°-11	.013	31	21	3
4	Chevrolet 6, 1500	DR	(m)	125	EH	525	3.40	12	65	5.00	5000	S	Pbd	Oc	F	9	139	.500	DR	1115380	4.5	2.50	DR	1112362	0°-325	18°-1725	7-8½	9°-11	.018	39	19	4
5	6, 2100†	DR	(m)	125	EH	525	3.40	12	65	5.00	5000	S	Pbd	Oc	F	9	139	.500	DR	1115380	4.5	2.50	DR	1112363	0°-300	16°-1850	7-8½	9°-11	.018	39	19	5
6	Chrysler 6, C-51	AL	MCL-6109	70	EH	410	2.00	8	50-65	6.00	5300	S	Tik	SgOc	F	9	146	.375	AL	CR-4001	5.0	2.25	AL	IAT-4012	0°-350	5°-800	9-11	8°-10	.019	36½	18	6
7	V8, C-52, C-53, C-54, C-55	AL	MCL-6109	70	EH	410	2.00	8	50-65	6.00	5300	S	Tik	SgOc	F	9	146	.375	AL	CR-6007B	5.0	2.25	AL	IAZ-4001B	0°-425	11°-1790	5½-8½	10½°-12½	.017	(b)	18	7
8	Crosley 4, CD, VC	AL	MZ-4147	250		280	2.00	4½	70	5.50	4300	S	Pbd	B	R	10	88	.375	AL	IG-6001	5.0	2.00	AL	IGW-4131	0°-3000	34°-	N	N	.020	46	16	8
9	De Soto 6, S-15	AL	MCL-6116	70	EH	410	2.00	8	50-65	6.00	5300	S	Tik	SgOc	F	9	146	.375	AL	CR-4001	5.0	2.25	AL	IAT-4012	0°-350	10°-1425	5½-6½	8°-10	.020	36½	18	9
10	V8, S-15	AL	MCL-6116	70	EH	410	2.00	8	50-65	6.00	5300	S	Tik	SgOc	F	9	146	.375	AL	CR-6007B	5.0	2.25	AL	IAZ-4002	0°-350	14°-1900	5½-6½	10½°-12½	.017	34	18	10
11	Dodge 6, D-41, D-42	AL	MCH-6201	70	EH	335	2.00	6	50-65	6.00	4900	S	Tik	B	F	9	146	.375	AL	CR-4001	5.0	2.25	AL	IAT-4011	0°-325	10°-1426	5½-6½	7°-9	.020	36½	18	11
12	Ford♣ 6, 1HA	Own	1HA			560	3.75	15	52½	5.80	6000	S	Tik		R		114	.375			5.0	3.00	Own	7HA		N	⅛		.025	36½	19	12
13	V8, 1BA	Own	1BA			560	3.75	15	52½	5.80	6000	S	Tik		R		112	.375			5.0	3.00	Own	1BA			A	5	.015	27¼	19	13
14	Henry J 4, 513																															14
15	6, 514																															15
16	Hudson 6, 4B	AL	MZ-4167	120		280	2.00	4½	70	5.50	4300	S	Tik	B	R	9	134	.406	AL	CR-6012A	4.9	4.40	AL	IAT-4009	300	10°-1200	9½	5°-12	020	39	19	16
17	6, 5B, 6B	AL	MCH-6109	120		335	2.00	6	65	5.50	4900	S	Tik	B	R	9	134	.406	AL	CR-6012A	4.9	4.40	AL	IAT-4009A	500	9°-2000	13	4°-16	020	39	19	17
18	6, 7B	AL	MCH-6109	120		335	2.00	6	65	5.50	4900	S	Tik	B	R	9	134	.406	AL	CR-6012A	4.9	4.40	AL	IAT-4009A	500	9°-2000	13	4°-16	.020	39	19	18
19	8, 8B	AL	MCH-6109	120		335	2.00	6	65	5.50	4900	S	Tik	B	R	9	134	.406	AL	CR-6012A	4.9	4.40	AL	IGT-4204B1	300	17½°-1700	13	4°-16	.017	27	19	19
20	Kaiser 6, 511, 512	DR	X10289			525	3.70	12	70	5.00	5000	S	Pbd		F																	20
21	Lincoln♣ V8, 1EL, 1EH	Own	8EL			590	3.25	15	52½	5.80	6000	S	Pbd		R								Own	OEL		N	½	6	.015	27¼	19	21
22	Mercury♣ V8, 1CM	Own	7RM			590	3.75	15	52½	5.80	6000	S	Pbd		R								Own	1CM			⅛	5	.015	27¼	19	22
23	Nash 6, 5210	DR	1107119	NA		550	3.25	12	70	5.65	5500	M	Dcp	Sg	R	9	122	.438	DR	1115378	5.0	2.30	DR	1112382	2°-600	24°-2800	0°-4	7½°-15	.022	34	19	23
24	6, 5240	DR	1107119 (q)	NA		550	3.25	12	70	5.65	5500	M(s)	Dcp(t)	Sg	R	9	122	.438	DR	1115378	5.0	2.30	DR	1112382	2°-600	24°-2800	0°-4	7½°-15	.022	34	19	24
25	6, 5260	DR	1107950 (r)	NA		570	3.15	14	70	5.85	5500	M(s)	Dcp(t)	Sg	R	9	132	.438	DR	1115378	5.0	2.30	DR	1110227	2°-600	30°-2700	0°-5	6°-15	.022	34	19	25
26	Oldsmobile V8, 88, 98	DR	1107997	120	EH	600	3.00	15	80	5.70	5500	S	Tik	SgOc	F	9	145	.500	DR	1115380	4.5	2.00	DR	1110824	650	30°-3000	4½-6½	20°-20	.016	30	21	26
27	Packard 8, 200, 250, 300	AD	(c)	120	EH	(d)	(e)	(f)				S	Dap	B	F	9	140	.500	AD	(g)		1.50	AD	(h)	600	16°-3200	6	17	.017	(j)	18	27
28	8, 400	AL	MCL-6114	120	EH	875	4.00	25				S	Dap	Oc	F	9	158	.500	AL	CR-4001A		1.50	AL	IGP-4502C	600	16°-3200	6	17	.017	27	18	28
29	Plymouth 6, P-22 P-23	AL	MCH-6201	70	EH	335	2.00	6	80-65	6.00	4900	S	Tik	B	F	9	146	.375	AL	CR-4001	5.0	2.25	AL	IAT-4001	0°-350	10°-1425	5½-6½	14	.020	36½	18	29
30	Pontiac 6, 25	DR	1107079	121	70°	525	3.37	12	65	5.67	5000	S	Pbd	SgOc	R	9	140	.500	DR	1115378	4.2	2.40	DR	1110222	600	26°-4100	7-9	16	.022	37	18	30
31	8, 27	DR	1107957	118	70°	600	3.00	15	60	5.00	6000	S	Pbd	SgOc	R	9	140	.500	DR	1115378	4.2	2.40	DR	1110831	500	22°-3760	7-9	20	.016	30	21	31
32	Studebaker 6, 12G	AL	MZ-4157	130	EH	560	4.00	11¾	70	5.50	4300	S	Dcp	B	F	9	124	.375	AL	CR-6007	5.6	1.00	AL	IAT-4010	450	14°-1400	4	18	.020	39	19	32
33	V8, 3H	DR	1107115 (n)	100	EH	525	3.40	12	65	5.70	5000	S	Dcp(p)	B	F	9	133	.375	DR	1115385	4.5	2.50	DR	1110826	460	30°-3200	4-6	16	.016	28	19	33
34	Willys 6, 685	AL	MCH-6203	185		335	2.00	6	65	5.00	4300	S	Tik	B	F	9	129	.375	AL	CR-6009	5		AL	IAT-4007A	300	9½°-1300	5½	6°-14	020	39	19	34

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
(b)—Each breaker 27°, total—34°.
(c)—AL—MCL-6113, DR-1107943.
(d)—AL-875-DR-600.
(e)—AL-4, DR-3.
(f)—AL-25, DR-16.
(g)—AL—CR-4001A, DR-1115379.
(h)—AL—IGP-4502C, DR-1110825.
(j)—AL—27°, DR-21°30'.
(k)—Dwell meter for setting point opening is not recommended.
(m)—1107109, 1107075.
(n)—1107116 with automatic transmission.
(p)—Models with automatic transmission have push button on dash.
(q)—1107121 on models with Hydra-Matic.
(r)—1107965 on models with Hydra-Matic.
(s)—Solenoid on models with Hydra-Matic.
(t)—Lift shift lever on models with Hydra-Matic.
AD—Auto-Lite or Delco-Remy.
AL—Electric Auto-Lite Co.
B—Bendix.
Dap—Depress accelerator pedal.
Dcp—Depress clutch pedal.
DR—Delco-Remy Div.
EH—Engine hot.
F—Front. M—Manual.
Oc—Overrunning clutch.
Pbd—Push button on dash.
R—Rear.
S—Solenoid.
Sg—Sliding gear.
SgOc—Sliding gear, overrunning clutch.
Tik—Turn ignition key beyond "on" position.

♣—1951 Specifications. 1952 data not available at time of going to press.

For Directory of the Manufacturers listed above, see page 338

IGNITION TIMING, SPARK PLUGS, AND CLUTCHES

Line Number	PASSENGER CAR MAKE AND MODEL	IGNITION TIMING: C's deg. @ RPM	IGNITION TIMING: Mark Location	SPARK PLUGS: Make and Model	SPARK PLUGS: Thread (mm)	SPARK PLUGS: Tightening Torque (ft. lb.)	SPARK PLUGS: Gap	CABLE: Conductor Type	CABLE: Insulation Type	CABLE: Spark Plug Protector	Suppression-Type	CLUTCH (PEDAL OPERATED): Make	Type	Field Coupling	Semi-centrifugal	Type Pressure Plate Springs	Total Plate Pressure	No. of Driven Discs	Facing: Material	Facing: Inside Diam. (In.)	Facing: Outside Diam. (In.)	Facing: Effective Area (Sq. In.)	Facing: Thickness (In.)	Facing: Number Required	Engagement Cushioning Method	Release Bearing: Type	Release Bearing: Method of Lubrication	Torsional Dampening: Method	Torsional Dampening: Friction Material	Line Number
1	Buick 8, 40, 50	4°BTC	Fly	AC-46X	14	25	.026	SC	Ne	MC	Di,C,G	Own	D	N	N	DS	1350	1	WA	6	10	100.6	.125	2	SFC	B	S	CS	Wo	1
2	8, 70	6°BTC	Fly	AC-46X	14	25	.026	SC	Ne	MC	Di,C,G	N																		2
3	Cadillac V8, 62, 60, 75	8°BTC	CB	AC-48	14	23	.035	7mm	Ne	Ni	R,G,C,Reg	L[A]	D	N	Y	C	Var	1	WA	7	11	113.0	.137	2	FD	B	*	CS	Wo	3
4	Chevrolet 6, 1500, 2100[♦]	5°BTC	Fly	AC-46-5	14	23	.035	SC	RN	N	N	O-B&B	D	N	N	DS		1	WA	6½	9½	71.9	.135	2	SFC	B	P	HS		4
5	Chrysler 6, C-51	2°BTC	VD	AL-AR-8	14	31	.035	SC	RN	CC	SP, DC	B&B	D	N	N	C	1413	1	WMA	7	10	80.1	.125	2	SFC	B	S	CS	N	5
6	6, C-51 Deluxe	2°BTC	VD	AL-AR-8	14	31	.035	SC	RN	CC	SP, DC	B&B	D	N	N	C	1501	1	WMA	7	9¼	77.8	.125	2	SFC	B	S	CS	N	6
7	V8, C-52, C-54, C-55	4°BTC	VD	AL-4S-140	14	31	.035	SC	RN	ETC	SP, DC	B&B	D	Y	N	C	2190	1	WMA	6	9½	85.2	.125	2	SFC	B	S	CS	N	7
8	V8, C-53	4°BTC	VD	AL-4S-140	14	31	.035	SC	RN	ETC	SP, DC	B&B	D	Y	N	C	3000	1	WMA	6½	10¼	98.7	.125	2	SFC	B	S	CS	N	8
9	Crosley 4, CD, VC	12°-700	Fly	AL-AN-7E	14	22	.025	SC		Ni	M	Roc	D	N	N	C	278	1	MA	4½	6½	33.1	.125	2	N	B	S	N		9
10	De Soto 6, S-15	2°BTC	VD	AL-AR-8	14	31	.035	SC	RN	CC	SP, DC	B&B	D	N	N	C	1413	1	WMA	7	10	80.0	.125	2	SFC	B	S	CS		10
11	6, S-15 Custom	2°BTC	VD	AL-AR-8	14	31	.035	SC	RN	CC	SP, DC	B&B	D	Y	N	C	1501	1	WMA	6	9¼	77.8	.125	2	SFC	B	S	CS		11
12	V8, S-17	4°BTC	VD	AL-4S-140	14	31	.035	SC	RN	ETC	SP, DC	B&B	D	N	N	C	1620	1	WMA	6½	10¼	98.7	.125	2	SFC	B	S	CS		12
13	Dodge 6, D-41, D-42	2°BTC	FP(p)	AL-AR-8	14	31	.035	SC	RN	CC	SP, DC	B&B-A	D	Y	N	C	1411(q)	1	WMA	6	9¼	77.8	.125(r)	2	SFC	B	S	CS		13
14	Ford♦ 6, 1HA	TDC	FP	CH-H-10	14		.031												WA	6	9½		.125	2							14
15	V8, 1BA	2°BTC	FP	CH-H-10	14		.031												WA	6	9½		.125	2							15
16	Henry J. 4, 513			AL-AN-7	14		.030					□□							MA	5⅝	8½		.135	2							16
17	6, 514			AL-AN-7	14		.030					□□							MA	5⅝	8½		.135	2							17
18	Hudson 6, 4B	TDC	Fly	CH-H-8	14	28	.032	SC	Ne		DC	Own	W	N	N	C	2078	1	Co	5¼	8	140.4	.203	90	Oil	B	*	CS	N	18
19	6, 5B, 6B	TDC	Fly	CH-H-8	14	28	.032	SC	Ne		DC	Own	W	N	N	C	2142	1	Co	6⅜	9	158.7	.203	90	Oil	B	*	CS	N	19
20	6, 7B	TDC	Fly	CH-H-11	14	28	.032	SC	Ne		N	Own	W	N	N	C	2142	1	Co	6⅜	9	158.7	.203	90	Oil	B	*	CS	N	20
21	8, 8B	TDC	Fly	CH-H-8	14	28	.032	SC	Ne		N	Own	W	N	N	C	2142	1	Co	6⅜	9	158.7	.203	108	Oil	B	*	CS	N	21
22	Kaiser 6, 511, 512			AL-A-5	14		.032					B&B-A							WA	6	9¼		.125	2							22
23	Lincoln♦ V8, 1EL, 1EH	4°BTC	VD	CH-H-10	14		.031					L							WA	7	10½		.125	2							23
24	Mercury♦ V8, 1CM	2°BTC	FP	CH-H-10	14		.031					B&B							WA	6¾	10		.125	2							24
25	Nash 6, 5210	TDC	VD	AL-A-7A	14	30	.030	SC	Ne	N	C	B&B	D	N	N	C	1155	1	WA	5⅜	8	53.2	.125	2	SFC	B	P	CS	St	25
26	6, 5240	TDC	VD	AL-A-7A	14	30	.030	SC	Ne	Ne	C	B&B	D	N	N	C	1170	1	WA	5⅜	8	53.2	.125	2	SFC	B	P	CS	St	26
27	6, 5260	TDC	VD	AL-A-7A	14	30	.030	SC	Ne	Ne	C	B&B	D	N	N	C	1395	1	WA	7	10	80.1	.125	2	SFC	B	P	CS	St	27
28	Oldsmobile V8, 88, 98	2½°BTC	FP	AC-46-5	14	26	.030	SC	Ne	Se	R	L	D	N	Y	C	1400	1	WMA	7	10½	48.1	.136	2	SFC	B	*	CS	St	28
29	Packard 8, 200, 400	6°-600	VD	(S)	14	30	.026	CT	BL		IS,G,C	L	D	N	Y	C	1386	1	WA	6¾	10	65.5	.125	2	TD	B	P	CS	MA	29
30	8, 250, 300	6°-600	VD	(S)	14	30	.026	CT	BL		IS G,C	L	D	N	Y	C	1467	1	WA	7	10½	96.2	.125	2	TD	B	P	CS	MA	30
31	Plymouth 6, P-22, P-23	2°BTC	FP	AL-AR-8	14	31	.035	SC	RN	N	SP, DC	B&B-A	D	N	N	C	1347(x)	1	MA	6½(y)	9¼(z)	71.9	.125♦	2	SFC	B	S	CS		31
32	Pontiac 6, 25	6°BTC	HB	AC-44-5	14	28	.026	Ca	Ne	Ni		L	D	N	N	DS		1	WA	6	9½	65.2	.125	2	SFC	B	S	CS	AS	32
33	8, 27	6°BTC	HB	AC-44-5	14	28	.026	Ca	Ne	Ni		L	D	N	N	DS		1	WA	6¾	10	65.7	.125	2	SFC	B	S	CS	AS	33
34	Studebaker 6, 12G	2°-550	VD	CH-J-7	14	28	.025		Ne	Sk	Reg,C,G,DC	B&B	D	N	N	CS	1170	1	MA	5⅜	8	55.2	.125	2	SFC	B	P	CS	SW	34
35	V8, 3H	6°-550	VD	CH-H-8	14	28	.035		No	Sk	Reg,C,G,DC	B&B	D	N	N	CS	1325	1	MA	6	9¼	78.0	.125	2	SFC	B	P	CS	SW	35
36	Willys 6, 685	TDC	VD	CH-	14	29	.030	SC	Ne	Ni		A	D	N	N	CS	1035	1	WA	5½	8½	72.0	.135	2	SFC	B	S	CS	St	36

ABBREVIATIONS

[a]—Auburn—77.8.
♦—Auburn—.115.
*—Grease when required.
[A]—75 Series only.
†—Powerglide chassis model available at extra cost.
□□—Drive plate assembly Borg & Beck, remainder Auburn.
(p)—D-42—Vibration Damper.
(q)—Auburn—1367.
(r)—Auburn—.114.
(s)—Autolite—A5H, AC—46-5, Champion—J-8.
(x)—Auburn—1275.
(y)—Auburn—6.
(z)—Auburn—9¼.
mm—Millimeters.
A—Auburn.
AC—AC Spark Plug Co.
AL—Electric Auto-Lite Co.
As—Asbestos on Steel.
B—Ball.
B & B—Borg & Beck Div.
BL—Braid and lacquer.
BTC—Before top center.
C—Coil.
Ca—Carbon.
CB—Crankshaft balancer.
CC—Cup and cover.
CH—Champion Spark Plug Co.
Co—Cork.
CS—Coil springs.
CT—Copper wire, tinned.
D—Dry.
DC—Distributor cap.
Di—Distributor.
DS—Diaphragm springs.
ETC—Enclosed tubes, covered.
FD—Formed disc.
Fly—Flywheel.
FP—Crankshaft fan drive pulley.
G—Generator.
HB—Harmonic Balancer.
HS—Hub springs.
IS—Ignition switch.
L—Long Mfg. Co.
MA—Moulded Asbestos.
MC—Metal cover.
N—No or none.
Ne—Neoprene.
Ni—Nipple.
O—B & B—Own or Borg & Beck.
P—Prelubricated.
R—Rotor.
Reg—Voltage regulator.
RN—Rubber with Neoprene jacket.
Roc—Rockford Clutch Div.
S—Sealed in.
SC—Stranded Copper.
SFC—Springs, flat, crimped.
Sk—Semi-skirt, integral with cable.
SP—Spark plugs.
Sa—Silicone sleeve.
St—Steel.
SW—Steel washers.
TD—Torbend disc.
TDC—Top dead center.
Var—Variable.
VD—Vibration Damper.
W—Wet.
WA—Woven Asbestos.
WMA—Woven molded Asbestos.
Wo—Woven material.
Y—Yes.

[♦]—1951 Specifications. 1952 data not available at time of going to press.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

TRANSMISSIONS—Conventional and Conventional with Overdrive

Line Number	PASSENGER CAR MAKE AND MODEL	TYPE			CONVENTIONAL TRANSMISSION														OVERDRIVE													
					No. of Forward Speeds	Ratios				Constant Mesh Gears in 2nd	Spur Gear Used In	Helical Gears Used In	Synchronous Meshing in 2nd and 3rd Gears	Lubricant		SAE Viscosity Number			Type	If Planetary—No. of Pinions	Manual Lockout	Downshift Accelerator Control	Minimum Cut-in Speed	Gear Ratio (to —1)	Lubricant			SAE Viscosity Number			Line Number
		Conventional	Conventional with O.D.	Automatic		First	Second	Third	Reverse					Capacity (pt.)	Type Recommended	Summer	Winter	Extreme Cold						Capacity (pt.)	Separate Filter	Type Recommended	Summer	Winter	Extreme Cold	
1	Buick 8, 40, 50	Std	NA	Opt	3	2.67	1.66	1.00	3.02	Y	N	AS	Y	1¾	MP	90	90	80													1
2	8, 70	NA	NA	Std																											2
3	Cadillac V8, 62, 60	NA	NA	Std																											3
4	V8, 75	Std	NA	Opt	3	2.39	1.53	1.00	2.39	Y	N	1, 2, R	Y	3¾	Hy	90	90	80													4
5	Chevrolet 6, 1500	Std	NA	NA	3	2.94	1.68	1.00	2.94	Y	N	AS	Y	1½	MO	90	90	90													5
6	6, 2100†	NA	NA	Std																											6
7	Chrysler 6, C-51-1	Std	NA	Opt(d)	3	2.57	1.83	1.00	3.48	Y	N	AS	Y	2¾	EO	10W	10W	10W													7
8	V-8, C-51-2, C-52, C-53, C-54, C-55	NA	NA	Std(d)																											8
9	Crosley 4, CD, VC	Std			3	3.29	1.72	1.00	3.29	Y	AS	N	N	1	N	90	90	80	N												9
10	De Soto 6, S-15, V8, S-17	Std(c)	Opt	Opt(a)	3	2.57	1.83	1.00	3.48	Y	N	AS	Y	2¾	EO	10W	10W	10W	P*	3	Y	Y	28	.700*	1¼	N	EO	10W	10W	10W	10
11	Dodge 6, D-41, D-42	Std	N	Opt	3	2.57	1.83	1.00	3.48	Y	N	AS	Y	2¾	EO	10W	10W	10W													11
12	Ford† 6, 1HA, V8, 1BA	Std	Opt	Opt		2.78	1.61		3.64	Y	N	AS	Y	3¼		80	80							.700*	4¼			80	80		12
13	Henry J. 4, 513	Std	Opt	N		2.61	1.63		3.54	Y	N	AS	Y	1½		90	80							.700*	¾			90	80		13
14	6, 514	Std	Opt	N		2.61	1.63		3.54	Y	N	AS	Y	1½		90	80							.700*	¾			90	80		14
15	Hudson 6, 4B, 5B, 6B, 7B, 8, 8B	Std	Opt	Opt	3	2.88	1.82	1.00	3.60	Y		AS	Y	2	EP	90	80		P*	3	Y	Y		.700*	1¼	N	EP	90	80		15
16	Kaiser 6, 511, 512	Std	Opt	Opt		2.57	1.55		3.49	Y	N	AS	Y	2½		90	80							.700*	1			90	80		16
17	Lincoln† V8, 1EH, 1EL	Std	Opt	Opt		2.53	1.52		3.16	Y		AS	Y	3½		80	80							.720*	3½			80	80		17
18	Mercury† V8, 1CM	Std	Opt	Opt		2.82	1.60		3.62	Y		AS	Y	3½		80	80							.700*	3½			80	80		18
19	Nash 6, 5210	Std	Opt	NA	3	2.61	1.63	1.00	3.54	Y	N	AS	Y	1½	MO	90	80		P*	3	Y	Y	25	.700*	1¼	Y	MO	90	80		19
20	6, 5240	Std	Opt	Opt	3	2.57	1.62	1.00	3.48	Y	N	AS	Y	2¼	MO	90	80		P*	3	Y	Y	25	.700*	1¼	Y	MO	90	80		20
21	6, 5260	Std	Opt	Opt	3	2.57	1.55	1.00	3.48	Y	N	AS	Y	2¼	MO	90	80		P*	3	Y	Y	25	.700*	1¼	Y	MO	90	80		21
22	Oldsmobile V8, 88, 98	Std	N	Opt	3	2.39	1.53	1.00	2.53	Y	N	AS	Y	2	MP	80	80	80	NA												22
23	Packard 8, 200, 250, 300, 400	Std	Opt	Opt(b)	3	2.43	1.53	1.00	3.16	Y	R	1 & 2	Y	2	MO	90	90	80	P*	4	Y	Y	22	.722*	1¼	N	MO	90	90	80	23
24	Plymouth 6, P-22, P-23	Std	N	N	3	2.57	1.83	1.00	3.48	Y	N	AS	Y	2¾	EO	10W	10W	10W													24
25	Pontiac 8, 25; 8, 27	Std		Opt	3	2.66	1.66	1.00	3.02	Y	N	AS	Y	1¾	EP	80-90	80-90	80-90													25
26	Studebaker 6, 12G	Std	Opt	Opt	3	2.61	1.63	1.00	3.54	Y	N	AS	Y	1½	MO	90	90	90	P*	3	Y	Y	30	.700*	1½	N	MO	90	90	90	26
27	V8, 3H	Std	Opt	Opt	3	2.57	1.55	1.00	3.48	Y	N	AS	Y	2½	MO	90	90	90	P*	3	Y	Y	30	.700*	1	N	MO	90	90	90	27
28	Willys 6, 685	Std	Opt	NA	3	2.61	1.63	1.00	3.54	Y	N	AS	Y	1½	Hy	90	80	70	P*	3	Y	Y	.26	.700*	¾	Y	Hy	90	80	70	28

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
*—Optional at extra cost.
(a)—Fluid coupling and hydraulically operated transmission standard on Custom, fluid coupling or torque converter with hydraulically operated transmission optional on S-17.
(b)—400—Standard.
(c)—Custom—Not available.
(d)—Fluid-Matic Drive is standard on C-51 Deluxe, C-55, C-52, C-54 and optional on C-51 Fluid Torque Drive is standard on C-53 and optional on C-51, C-55, C-52 and C-54.
‡—1951 Specifications. 1952 data not available at time of going to press.

AS—All speeds.
EO—Engine oil.
EP—Extreme pressure.
Hy—Hypoid lube.
MO—Mineral gear oil.
MP—"Multi-Purpose" gear lubricant.
N—No or none.
NA—Not available.
Opt—Optional at extra cost.
P—Planetary.
R—Reverse.
Std—Standard equipment.
Y—Yes.

For Directory of the Manufacturers listed above, see page 338

AUTOMATIC TRANSMISSIONS

Line Number	PASSENGER CAR MAKE AND MODEL	TRADE NAME	Type	Manual Selector Positions (left to right)	GEAR RATIOS: 1st or Low Range	2nd Speed	3rd or Drive Range	4th Speed	Reverse	Shifting Within Drive Range by Accelerator and Governor	Governor-Forced Shift	Downshift Up to (mph)	TORQUE CONVERTER: Number of Elements	Max. Ratio at Stall at Engine RPM	Mechanical Lockup: Provided	Speed Range (mph)	Releases at (mph)	Type of Cooling	Anti-Creep Device	LUBRICATION: Capacity—Refill	Type Recommended	Grade (S.A.E. No.): Summer	Winter	Extreme Cold	Line Number
1	Buick 8, 40, 50	Dynaflow*	TCG	P,N,D,L,R	1.82 (e)		1.00 (e)		1.82 (e)	N	N	40	5	2.25 1800	N			WC	N	17	(d)	(d)	(d)	(d)	1
2	8, 70	Dynaflow	TCG	P,N,D,L,R	1.82 (e)		1.00 (e)		1.82 (e)	N	N	40	5	2.25 1600	N			WC	N	20	(d)	(d)	(d)	(d)	2
3	Cadillac V8 62 60 75	Hydra-Matic—Dual Range (f)	FCG	N,Dr,Lo,R	3.82	2.63	1.45	1.00	4.30	Y	Y	70									(d)	(d)	(d)	(d)	3
4	Chevrolet 6 1500 2100†	Powerglide*	TCG	P,N,D,L,R	1.82 (e)				1.82 (e)	N	N	40	5	2.20	N			IOC	N	18	(d)	(d)	(d)	(d)	4
5	Chrysler 6 C51; V8 C52 C54 C55□	Fluid-Matic (g)	FCG	R Lo,Nu,Dr	3.57	2.04	1.75	1.00	3.99	Y	N	40													5
6	V-8, C-53	Fluid-Torque (h)	TCG	R,Lo,Nu,Dr	3.28 (e)	2.04 (e)	1.61 (e)	1.00 (e)	3.69 (e)	Y	N	40	4	2.34 1400	N			WCHE	N	3 (a)	EO	10W	10W	5W	6
7	Crosley 4, CD, VC	None																							7
8	De Soto 6, S-15	(m)	FCG	(b)	3.57	2.04	1.75	1.00	3.99	Y	N	40								3	EO	10W	10W	5W	8
9	V8, S-17	(k)	TCG	(b)	3.87 (e)	2.04 (e)	1.75 (e)	1.00 (e)	3.99 (e)	Y	N	55	4	2.34 1400	N			WCHE	N	3 (a)	EO	10W	10W	5W	9
10	Dodge 6, D-41, D-42	Gyromatic*	FCG	(b)	3.57	2.04	1.75	1.00	3.99	Y	N	40								3	EO	10W	10W	10W	10
11	Ford† 6, 1HA, V8, 1BA	Fordomatic*																							11
12	Henry J. 4, 513, 6, 514	None																							12
13	Hudson 6, 4B, 5B, 6B, 7B, 8, 8B	Hydra-Matic*	FCG	N,Dr,Lo,R	3.82	2.63	1.45	1.00	4.30	Y	Y	52													13
14	Kaiser 6, 511, 512	Hydra-Matic*	Hyd																						14
15	Lincoln† V8, 1EL, 1EH	Hydra-Matic*	Hyd																						15
16	Mercury† V8, 1CM	Merc-O-Matic*	TCG																						16
17	Nash 6, 5210, 5240, 5260	Hydra-Matic*	FCG	N,D,Lo,R	NA	NA	NA	NA	NA	Y	Y	58	N							22	(d)	(d)	(d)		17
18	Oldsmobile V8, 88, 98	Hydra-Matic*	FCA	N,Dr,S,Lo,R	3.82	2.63	1.45	1.00	4.30	Y	Y	65	NA							21	(d)	(d)	(d)	(d)	18
19	Packard 8, 200, 250, 300, 400	Ultramatic (j)	TCG	P,Nu,H,Lo,R	1.82 (e)		(e)		1.64 (e)	Y	Y	67	4	2.40 1400 (c)	Y	15 26	14	WCOC	N	24	(d)	(d)	(d)	(d)	19
20	Plymouth 6, P-22, P-23																								20
21	Pontiac 6, 25; 8, 27	Hydra-Matic*	FCG	Nu,Dr,Lo,R	3.82	2.63	1.45	1.00	4.30	Y	Y	60								22	AF	AF	AF	AF	21
22	Studebaker 6, 12G	Studebaker*	TCG	P,N,D,L,R	2.31 (e)		1.43 (e)	1.00 (e)	2.00 (e)	Y	Y	48	3	2.25 1550	Y	21	18	FA	Y	19	EO	10 10W	10 10W	10 10W	22
23	V8, 3H	Studebaker*	TCG	P,N,D,L,R	2.31 (e)		1.43 (e)	1.00 (e)	2.00 (e)	Y	Y	60	3	2.15 1600	Y	18	15	FA	Y	19	EO	10 10W	10 10W	10 10W	23
24	Willys 6, 685																								24

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.

□—When equipped with fluid-torque drive, specifications are the same as for the C-53.

*—Optional at extra cost.

‡—1951 Specifications. 1952 data not available at time of going to press.

(a)—Transmission only, capacity of torque converter, 10½.

(b)—Standard gear shift with first gear position eliminated.

(c)—250, 300 and 400, 2.4 at 1500.

(d)—S.A.E. type A.

(e)—Plus torque ratio.

(f)—Optional at extra cost on Series 75.

(g)—Optional at extra cost on C-81.

(h)—Optional at extra cost on C-51, C-52, C-54 and C-55.

(j)—Optional at extra cost on 200, 250 and 300.

(k)—Tip toe shift with fluid-torque drive optional at extra cost.

(m)—Tip toe shift with fluid drive.

AF—Automatic transmission fluid.

D—Drive. **Dr**—High range.

EO—Engine oil. **FA**—Forced air.

FCA—Fluid coupling with fully automatic transmission.

FCG—Fluid coupling with gears.

H—High.

Hyd—Hydraulic shifting mechanism.

IOC—Immersion type oil cooler.

L—Low range. **Lo**—Low range.

N—No or none.

NA—Not available.

Nu—Neutral.

P—Parking. **R**—Reverse.

S—Super performance.

TCG—Torque converter with gears.

WC—Water cooler.

WCHE—Water cooled heat exchanger.

WCOC—Water cooled oil cooler.

Y—Yes.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

PROPELLER SHAFT, AND REAR AXLE

Line Number	PASSENGER CAR MAKE AND MODEL	PROPELLER SHAFT										REAR AXLE																Line Number
		Number Used	Type	Intermediate Bearing Type	Intermediate Bearing Lubrication	Universals Make	Universals Number Used	Universals Type	Universals Bearing Type	Universals Bearing Lubrication	Drive Taken Through	Torque Taken Through	Type	Gear Type	Gearing Ratios Conventional (to 1)	Gearing Ratios Overdrive (to 1)	Gearing Ratios Automatic (to 1)	Gearing No. of Teeth—Ring and Pinion Conventional	Gearing No. of Teeth—Ring and Pinion Overdrive	Gearing No. of Teeth—Ring and Pinion Automatic	Pinion Adjustment	Pinion Bearing Adjustment	Lubricant Capacity (Pt.)	Lubricant Type Recommended	Lubricant S.A.E. Viscosity Number Summer	Lubricant S.A.E. Viscosity Number Winter	Lubricant S.A.E. Viscosity Number Extreme Cold	
1	Buick 8, 40, 50	1	TT			Sa, Sp	1	C	Bu	AT	TT	TT	SF	H	(m)		(n)	(m)		(n)	Sh	N	3	HG	90	90	80	1
2	8, 70	1	TT			Sa, Sp	1	C	Bu	AT	TT	TT	SF	H			(n)			(n)	Sh	N	3	HG	90	90	80	2
3	Cadillac V8, 62	1	E			M, Sa	2	CT	Ne	P	RS	RS	SF	H			3.36				N	CS	5	HG	90	90	80	3
4	V8, 60	1	E			M, Sa	2	CT	Ne	P	RS	RS	SF	H			3.36				N	CS	5	HG	90	90	80	4
5	V8, 75	2	E	AF	P	M, Sa	3	CT	Ne	P	RS	RS	SF	H	3.77		3.77				N	CS	5	HG	90	90	80	5
6	Chevrolet 6, 1500, 2100†	1	TT	N		Own	1	YT	Pl	AT	RS	TT	SF	H	4.11		3.55				Sh	N	3½	HG	90	90	90	6
7	Chrysler 6, C-51	1	E				2	C	AF	P	RS	RS	SF	H	3.90		3.91				SS	Sh	3¼	EPH	90	90	80	7
8	V8, C-52, C-54, C-55	1	E				2	C	AF	P	RS	RS	SF	H			3.73				SS	Sh	3½	EPH	90	90	80	8
9	V8, C-53	2	E	AF	S		3	C	AF	P	RS	RS	SF	H			3.54				N	SS	5	EPH	90	90	80	9
10	Crosley 4, CD, VC	1	TT	Pl	F	NE	1	T	Pl	P	TT	TT	SF	Spi	5.17	N	N	31-8	N	N	Sh	Sh	1½	N	90	90	80	10
11	De Soto 6, S-15	1	E	N		NA	2	C	AF	P	RS	RS	SF	H	3.54(s)	4.10	3.73(v)	39-11(s)	41-10	41-11(v)	SS	Sh	3¼	EPH	90	90	80	11
12	V8, S-17	1	E	N		NA	2	C	AF	P	RS	RS	SF	H	3.54(x)	3.36(u)	3.73(w)	39-11(t)	37-11(u)	41-11(W)	SS	Sh	3½	EPH	90	90	80	12
13	Dodge 6, D-41, D-42	1	E			NA	2	BT	AF	P	RS	RS	SF	H	3.90		3.90				SS	Sh	3¼	EPH	90	90	80	13
14	Ford♦ 6, 1HA, V8, 1BA						2		Ne		RS	RS	SF	H	3.73(u)						Sh	CS	3½	HG	90	90		14
15	Henry J. 4, 513					Sp	2		Ne		RS	RS	SF	H	4.10(z)			41-10			Sh	Sh	3	HG	90	80		15
16	6, 514					Sp	2		Ne		RS	RS	SF	H	4.10(z)			41-10			Sh	Sh	3	HG	90	80		16
17	Hudson 6, 4B, 5B	2	E	AF	P	Sp	3		AF	F	RS	RS	SF	H	4.10	4.55	3.58	41-10			Sh	Sh	3½	HG	90	90	80	17
18	6, 6B	2	E	AF	P	Sp	3		AF	F	RS	RS	SF	H	4.10	4.55	3.58	41-10			Sh	Sh	3½	HG	90	90	80	18
19	6, 7B	2	E	AF	P	Sp	3		AF	F	RS	RS	SF	H	4.10	4.55	3.58	41-10			Sh	Sh	3½	HG	90	90	90	19
20	8, 8B	2	E	AF	P	Sp	3		AF	F	RS	RS	SF	H	4.10	4.55	3.58	41-10			Sh	Sh	3½	HG	90	90	90	20
21	Kaiser 6, 511, 512					Sp	2				RS	RS	SF	H	3.91(z)			45-11			Sh	Sh	3	HG	90	90		21
22	Lincoln♦ V8, 1EL, 1EH					Sp	2		Ne		RS	RS	SF	H	3.91*			43-11			Sh	Sh	4					22
23	Mercury♦ V8, 1CM					M	2		Ne		RS	RS	SF	H	3.91*			43-11			Sh	Sh	3					23
24	Nash 6, 5210	1	E	N		M	2	C	AF	P	RS	RS	SF	H	3.77†	4.40(u)	N	34-9	35-8		Sh	Sh	3	HG	90	80		24
25	6, 5240	1	TT	AF	P	M, Sa	1	C	AF	P	TT	TT	SF	H	4.40(u)	4.90†	3.30	35-8	39-8	43-13	Sh	Sh	3	HG	90	80		25
26	6, 5260	1	TT	AF	P	M, Sa	1	C	AF	P	TT	TT	SF	H	4.10	4.40(u)	3.15	35-9	40-9	41-13	Sh	Sh	4	HG	90	80		26
27	Oldsmobile V8, 88	1	E	N		Sa	2	C	Ne	P	RS	RS	SF	H	3.64(x)		3.23(y)	40-11(x)		42-13(y)	Sh	Nu	3¼	HG	90	90	90	27
28	V8, 98	1	E	N		Sa	2	C	Ne	P	RS	RS	SF	H	3.64(x)		3.42(y)	40-11(x)		41-12(y)	Sh	Nu	3¼	HG	90	90	90	28
29	Packard 8, 200, 250, 300, 400	1	E			M,Sp,U(e)	2	(f)	AF	(g)	RS	RS	SF	H	3.90	4.10	3.54	39-10	41-10	39-11	N	CS	4	HG	90	90	80	29
30	Plymouth 6, P-22, P-23	1	E			NA	2	BT	AF	P	RS	RS	SF	H	3.73(h)						SS	Sh	3¼	EPH	90	90	80	30
31	Pontiac 6, 25, 8, 27	1	E			Sa, M	2	C	R	P	RS	RS	SF	H	4.10(j)		3.07	41-10(j)		40-13			3¼	EPH	90	90	90	31
32	Studebaker 6, 12G	2	E	AF	S	Sp	3	C	Ne	F	RS	RS	SF	H	4.10	4.56	4.10	41-10	41-9	41-10	Sh	Sh	2½	HG	90	90	90	32
33	V8, 3H	2	E	AF	S	Sp	3	C	Ne	F	RS	RS	SF	H	4.09	4.55	3.54				Sh	Sh	3	HG	90	90	90	33
34	Willys 6, 685	1	E			U	2	BT	AF	P	RS	RS	SF	H	4.10	4.56		41-10	41-9		Sh	Sh	2	EPH	90	90	90	34

ABBREVIATIONS

¶—Powerglide chassis model available at extra cost.
*—4.27 optional.
†—4.40 (35-8) optional.
(e)—400—Universal Products only.
(f)—200, 250 & 300—Mechanics and Spicer and Cross (rear); 400—Ball & Trunnion (front) and Cross (rear).
(g)—200, 250 & 300—Mechanics—prepack, Spicer-fitting, Universal Products—prepack; 400—prepack.
(h)—P-23-3.90.
(j)—27—3.90 (39-10).
(m)—41, 41D, 45R, 46S, 48, 48D, 56R, 72R, 76R and 76C—3.90 (43-11); 46C, 56C, 52, 59 and 79R—4.10 (43-11).
(n)—41, 41D, 45R, 46S, 48, 48D, 56R, 72R, 76R and 76C—3.90 (47-13); 46C, 56C, 52, 59 and 79R—3.90 (43-11).
(o)—3.73 (41-11), 3.90 (39-10) optional on Deluxe.
(t)—3.73 (41-11) optional.
(u)—4.10 (41-10) optional.
(v)—3.90 (39-10) optional.
(w)—3.91 (43-11) optional.
(x)—3.91 (39-10) optional.
(y)—3.07 (40-13) optional.
(z)—4.55 optional.

♦—1951 Specifications. 1952 data not available at time of going to press.

AF—Anti-friction.
AT—Automatic, by transmission lubricant.
BT—Ball & Trunnion.
Bu—Bushing.
C—Cross.
CS—Collapsible spacer.
CT—Cross & Trunnion.
E—Exposed.
EPH—Extreme pressure Hypoid Gear Lubricant.
F—Grease fitting.
H—Hypoid.
HG—Hypoid Gear Oil.
M—Mechanics Universal Joint Div.
N—No or none.
NA—Not available.
Ne—Needle.
NE—New England Products Co.
Nu—Nut.
P—Prepack.
Pl—Plain. R—Roller.
RS—Rear springs. S—Sealed.
Sa—Saginaw Steering Gear Div.
SF—Semi-floating.
Sh—Shims.
Sp—Spicer Mfg. Div.
Spi—Spiral.
SS—Solid shim.
T—Trunnion.
TT—Torque tube.
U—Universal Products.
YT—Yoke & Trunnion.

For Directory of the Manufacturers listed above, see page 338

TIRES AND BRAKES

Line Number	PASSENGER CAR MAKE AND MODEL	TIRES: Rev./Mile at 30 mph	TIRES: Inflation Pressure Front	TIRES: Inflation Pressure Rear	SERVICE BRAKES: Type	Booster Type	Effective Area (sq. in.)	Percent Effectiveness—Rear	Drum: Type and Material	Drum: Diameter Front	Drum: Diameter Rear	Brake Lining: Bonded or Riveted	Brake Lining: Primary Material	Brake Lining: Primary Size (lengthxwidthxthickness) Front Wheel	Brake Lining: Primary Size (lengthxwidthxthickness) Rear Wheel	Brake Lining: Primary Segments per Shoe	Brake Lining: Secondary Material	Brake Lining: Secondary Size (lengthxwidthxthickness) Front Wheel	Brake Lining: Secondary Size (lengthxwidthxthickness) Rear Wheel	Brake Lining: Secondary Segments per Shoe	Wheel Cylinder Bore: Front	Wheel Cylinder Bore: Rear	Master Cylinder Bore	Available Pedal Travel	Line Pressure at 100 lb. Pedal Load	Shoe Clearance Adjustment	PARKING BRAKES: Type of Control	PARKING BRAKES: Location of Control	PARKING BRAKES: Operates on	Line Number
1	Buick 8, 40	726	24	24	H		184.6	47	C	12	12	R	MA	10.09x2 1/4x 3/16	10.09x1 3/4x 3/16	1	MA	12.97x2 1/4x 3/16	12.97x1 3/4x 3/16	1	1 1/16	1	1	7 1/2	600	.015	SO	LC	RB	1
2	8, 50	726	24	24	H		184.6	47	C	12	12	R	MA	10.09x2 1/4x 3/16	10.09x1 3/4x 3/16	1	MA	12.97x2 1/4x 3/16	12.97x1 3/4x 3/16	1	1 1/16	1	1	7 1/2	600	.015	SO	LC	RB	2
3	8, 70	712	24	24	H		219.0	47	C	12	12	R	MA	10.09x2 1/2x1 1/4	10.09x2 1/4x 3/16	1	MA	12.97x2 1/2x1 1/4	12.97x2 1/4x 3/16	1	1 1/16	1	1	7 1/2	600	.015	SO	LC	RB	3
4	Cadillac V8, 62, 60		24	24	H	N	241.5	44	C	12	11	R	MA	12.92x2 1/2x1 1/4	10.55x2 1/2x1 1/4	1	MA	12.92x2 1/2x1 1/4	11.90x2 1/2x1 1/4	1	1 1/16	1	1	5 1/2	575	.009	TM	IL	RB	4
5	V8, 75	704	26	26	H	N	258.5	44	C	12	12	R	MA	12.92x2 1/2x1 1/4	12.92x2 1/2x1 1/4	1	MA	12.92x2 1/2x1 1/4	12.92x2 1/2x1 1/4	1	1 1/16	1	1	5 1/2	575	.009	TM	IL	RB	5
6	Chevrolet 6, 1500, 2100†	748	24	24	H	N	158.0	44	C	11	11	Bo	MA	9.31x2x 3/16	9.31x1 3/4x 3/16	1	MA	11.69x2x 3/16	11.69x1 3/4x 3/16	1	1 1/16	1	1	6 1/2	620	(k)	LM	IR	RB	6
7	Chrysler 6, C-51	722	24	24	H	(a)	201.0	40	C	12	12	Bo	MA	12.57x2x 1/4	12.57x2x 1/4	1	MA	12.57x2x 1/4	12.57x2x 1/4	1	1 1/16	1 1/16	1	7	918	.006	TM	IL	T	7
8	V8, C-55	707	24	24	H	V	201.0	40	C	12	12	Bo	MA	12.57x2x 1/4	12.57x2x 1/4	1	MA	12.57x2x 1/4	12.57x2x 1/4	1	1 1/16	1 1/16	1	7	918	.006	TM	IL	T	8
9	V8, C-52, C-54	699	24	24	H	V	201.0	40	C	12	12	Bo	MA	12.57x2x 1/4	12.57x2x 1/4	1	MA	12.57x2x 1/4	12.57x2x 1/4	1	1 1/16	1 1/16	1 1/16	7	1230(c)	.006	TM	IL	T	9
10	** V8, C-53	673	24	24	SE	N	260.0	40	(b)	(b)	(b)	Bo	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1 1/4	1	1	7	1040	SA	TM	IL	T	10
11	Crosley 4, CD, VC	490	25	25	H		65.2	47	C	9	9	R		9.47x1x 3/16	9.47x1x 3/16	1		6.83x1x 3/16	6.83x1x 3/16	1	1	7/8	1	5	800	PR	TM	SC	RB	11
12	De Soto 6, S-15, V8, S-17	722	24	24	H	(a)	201.0	40	C	12	12	Bo	MA	12.57x2x 1/4	12.57x2x 1/4	1	MA	12.57x2x 1/4	12.57x2x 1/4	1	1 1/16	1 1/16	1	7	720	.006	TM	IL	T	12
13	Dodge 6, D-41	748	24	24	H	NA	158.0	40	C	10	10	Bo	MA	10.50x2x 1/16	10.50x2x 1/16	1	MA	10.50x2x 1/16	8.00x2x 1/16	1	1 1/16	1 1/16	1 1/16	7	817	.006	TM	IL	T	13
14	6, D-42	733	24	24	H	NA	173.5	40	C	11	11	Bo	MA	11.50x2x 1/16	11.50x2x 1/16	1	MA	11.50x2x 1/16	8.80x2x 1/16	1	1 1/16	1 1/16	1 1/16	7	817	.006	TM	IL	T	14
15	Ford‡ 6, 1HA, V8, 1BA		28	25	H		173.1	38	C	10	10		MA	10.82x2 1/4x 3/16	10.82x1 3/4x 3/16		MA	10.82x2 1/4x 3/16	10.82x1 3/4x 3/16							.010			RB	15
16	Henry J. 4, 513		24	24	H		132.0		C	9	9		MA	x2x 3/16	2x 3/16		MA	x2x 3/16	x2x 3/16										RB	16
17	6, 514		24	24	H		132.0		C	9	9		MA	x2x 3/16	2x 3/16		MA	x2x 3/16	x2x 3/16										RB	17
18	Hudson 6, 4B	731	26	24	H	N	140.4	41	C	11	11	R		20.4 x1 3/4x1 1/4	20.5 x1 3/4x1 1/4	1		23.8 x1 3/4x1 1/4	23.8 x1 3/4x1 1/4	1	1 1/16	11/16	1	4 1/2	620	.010	TM	IL	RB	18
19	6, 5B, 6B, 7B, 8, 8B	731	26	24	H	N	158.7	41	C	11	11	R		21.3 x2 1/4x1 1/4	20.5 x1 3/4x1 1/4	1		23.9 x2 1/4x1 1/4	23.8 x1 3/4x1 1/4	1	1 1/16	11/16	1	4 1/2	620	.010	TM	IL	RB	19
20	Kaiser 6, 511, 512		24	24	H		175.7	44 1/2	C	11	11		MA	11.00x2x 1/2	11.00x2x 1/2		MA	11.00x2x 1/2	11.00x2x 1/2							.010			RB	20
21	Lincoln‡ V8, 1EL		26	24	H		196.4	41	C	12	12		MA	11.55x2 1/4x 3/16	11.55x2x 3/16		MA	11.55x2 1/4x 3/16	11.55x2x 3/16							.010			RB	21
22	V8, 1EH		24	24	H		196.4	41	C	12	12		MA	11.55x2 1/4x 3/16	11.55x2x 3/16		MA	11.55x2 1/4x 3/16	11.55x2x 3/16							.010			RB	22
23	Mercury‡ V8, 1CM		24	24	H		158.0	44	C	11	11		MA	10.60x2x 3/16	10.60x1 3/4x 3/16		MA	10.60x2x 3/16	10.60x1 3/4x 3/16							.010			RB	23
24	Nash 6, 5210	790(r)	24	24	H	N	96.0	40	C	8	8	R	MA	8.42x1 3/4x 3/16	8.42x1 3/4x 3/16	1	MA	8.42x1 1/4x 3/16	8.42x1x 3/16	1	1	1/2	1	6 1/2	NA	F	LM	IL	RB	24
25	6, 5240	742	24	24	H	N	132.0	43	C	9	9	R	MA	9.88x2x 3/16	9.88x2x 3/16	1	MA	7.69x1 3/4x 3/16	7.69x1 3/4x 3/16	1	1	5/8	1	6	NA	.015	LM	IL	RB	25
26	6, 5260	734	24	24	H	N	170.0	44	C	10	10	R	MA	8.94x2x 3/16	8.94x2x 3/16	1	MA	11.09x2 1/2x 3/16	11.11x2x 3/16	1	1 1/16	1/2	1 1/16	6	NA	.015	LM	IL	RB	26
27	Oldsmobile V8, 88, 98	718	24	22	Be	N	191.7	42	C	11	11	R	MA	9.37x2 1/4x 3/16	9.37x2x 3/16	1	MA	12.03x2 1/4x 3/16	12.03x2x 3/16	1	1 1/16	1/2	1	6 1/2	735	.015	TM	IL	RB	27
28	Packard 8, 200	730	24	24	H	(d)	171.5	40	C	12	12	R	(e)	11.50x1 3/4x 3/16	11.50x1 3/4x 3/16	1	(f)	13.00x1 3/4x 3/16	13.00x1 3/4x 3/16	1	1 1/16	1	1	6 3/4	710	.010	TM	IL	RB	28
29	8, 250, 300, 400	716	24	24	H	(d)	208.2	40	C	12	12	R	(e)	11.50x2 1/4x 3/16	11.50x2x 3/16	1	(f)	13.00x2 1/4x 3/16	13.00x2x 3/16	1	1 1/16	1	1	6 3/4	710	.010	TM	IL	RB	29
30	Plymouth 6, P-22, P-23	775(h)	24	24	H	N	158.0	40	C	10	10	B	MA	10.50x2x 1/16	10.50x2x 1/16	1	MA	10.50x2x 1/16	8.00x2x 1/16	1	1 1/16	1 1/16	1 1/16	7	817	.006	TM	IL	T	30
31	Pontiac 6, 25; 8, 27	736	24	24	H		171.0	40	C	11	11	R	MA	9.36x2 1/4x 3/16	9.36x1 3/4x 3/16	1	MA	12 03x2 1/4x 3/16	12.03x1 3/4x 3/16	1	1 1/16	7/16	1	6 1/16		.015	TM	IL	RB	31
32	Studebaker 6, 12G	771	26	24	H		148.0	43	Co	9	9	R	MA	10.25x2x 3/16	10.25x2x 3/16	1	MA	7.75x2x 3/16	7.75x2x 3/16	1	1	7/16	1	6	1000	(m)	TM	IR	RB	32
33	V8, 3H	739	26	22	H		163.0	38	Co	11	9	R	MA	12.50x2x 3/16	10.25x2x 3/16	1	MA	9.62x2x 3/16	7.75x2x 3/16	1	1	7/16	1	6	1000	(m)	TM	IR	RB	33
34	Willys 6, 685	790	24	24	H	N	132.9	35	C	9	9	R	MA	9.88x2x 3/16	9.88x2x 3/16	1	MA	7.69x1 3/4x 3/16	7.69x1 3/4x 3/16	1	1 1/16	1/2	1		650	.005	LM	IL	RB	34

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.

(a)—Vacuum booster brake available as special equipment on Chrysler Windsor and Saratoga 8-passenger Sedans and Station Wagon, De-Soto S-15 Custom 8-passenger Sedans and S-17.

(b)—2 Aluminum pressure plates, 9" inside and 12" outside diameters.

(c)—With vacuum booster.

(d)—Easamatic power brake optional.

(e)—Marshall-4112.

(f)—Marshall-9051.

(h)—P-23-748.

(k)—Light drag and back off 14 notches.

(m)—Secondary—automatic-O, Primary—automatic after pre-set—.006 to .008.

(r)—6.40—7½2.

Be—Bendix Products Div.

Bo—Bonded.

C—Centrifuse—Cast Iron.

Co—Composite. F—Floating.

H—Hydraulic—internal expanding drum.

IL—Under instrument panel, left of steering column.

IR—Under instrument panel, right of steering column.

LC—Left side of cowl panel.

LM—"L" handle, multiple pawl ratchet.

MA—Moulded Asbestos.

N—No or none.

PR—Push rod.

R—Riveted.

RB—Rear brakes.

SA—Self-adjusting.

SC—On steering column.

SE—Self-energizing disc.

SO—Step on—left foot operated.†

T—Transmission.

TM—"T" handle, multiple pawl ratchet.

V—Vacuum.

6—1951 Specifications. 1952 data not available at time of going to press.

For Directory of the Manufacturers listed above, see page 338

1952 PASSENGER CARS

FRONT SUSPENSION AND STEERING

Line Number	PASSENGER CAR MAKE AND MODEL	FRONT SUSPENSION											STEERING																			Line Number
			Spring						Shock Absorbers								Mechanical				Power						Linkage					
																	Gear						Gear								
																			Ratios (to 1)				Ratios (to 1)							
		Type	Type	Length	Width	Spring Rate (lb. per in.)	Rate at Wheel (lb. per in.)	Normal Load (lb. @ rated height)	Make	Type	Piston Diam. (in.)	Stabilizer—Type	Type	Wheel Diameter	Wall to Wall	Curb to Curb	Outside Wheel Angle with Inside Wheel at 20° (deg.)	Type	Make	Gear	Overall	Type	Make	Type	Gear	Overall	Pump Driven by	Type	Location	Drag Link	Tie Rods	
1	Buick 8, 40, 50	IC	C	14⅜	4⅞	360	93	1040-9¼	De	Le	1⅛	L	M	18	42'0"(x)	39'6"(y)	18°40'	BW	S	19.6	24.0							Tub	R	N	2	1
2	8, 70	IC	C	15	4⅞	380	100	1150-9¼	De	Le	1½	L	M(b)	18	44'4"(x)	41'10"(y)	18°40'	BW	S	23.6	29.0	Hy	S	BW	21.3	26.0	Be	Tub	R	N	2	2
3	Cadillac V8, 62	IC	C	18⅝	4	335		2060-10⅛	De	D	1	L	M(b)	18	46'0"		24°42'	BW	S	21.3	25.5	Hy	S	BR	21.3	25.5	Ce	PL	R	T	2	3
4	V8, 60	IC	C	18⅝	4	335		2030-10⅛	De	D	1	L	M(b)	18	45'0"		24°42'	BW	S	21.3	25.5	Hy	S	BR	21.3	25.5	Ce	PL	R	T	2	4
5	V8, 75	IC	C	18⅞	4	375		2375-10⅛	De	D	1⅜	L	M(b)	18	51'0"		23°6'	BW	S	21.3	25.5	Hy	S	BR	21.3	25.5	Se	PL	R	T	2	5
6	Chevrolet 6, 1500	ISL	C	14	4⅝	340	125	1400-9⅛	De	D	1	L	M	17¼	40'0"	37'0"	17¾°	WR	S	19.4	23.1							CP	R	Lo	2	6
7	6, 2100†	ISL	C	14⅜	4⅝	340	125	1550-9⅛	De	D	1	L	M	17¼	40'0"	37'0"	17¾°	WR	S	19.4	23.1							CP	R	Lo	2	7
8	Chrysler 6, C-51	ILCC	C	11	4	415		(a)	Own	D	1	LI	M	18	NA	46'5"	18¼°	WR	G	18.2	22.2							DTR	R	Lo	2	8
9	V8, C-52, C-54, C-55	ILCC	C	11	4	480		(a)	Own	D	1	LI	M(b)	18	NA	44'5"(c)	18¼°	WR	G	20.4(d)	26.2(e)							DTR	R	Lo	2	9
10	V8, C-53	ILCC	C	11	4	550		(a)	Own	D	1	LI	P	18	NA	NA	18¼°					Hm	G	WR	16.2	16.2	Ge	DTR	R	Lo	2	10
11	Crosley 4, CD	IBLS	SE	27	1½	195	NA	585	De	D	1	N	M	15	30'0"	35'0"	24°	CL	Ro	17.5	17.5	N						DL	F	Lo	1	11
12	4, VC	IBLS	SE	27	1½	100		250-275	De	D	1	N	M	15	30'0"	35'0"	24°	CL	Ro	17.5	17.5	N						DL	R	Lo	1	12
13	De Soto 6, S-15	ILCC	C		4	415		(f)	Own	D	1	LI	M	18	NA	40'4"	18¼°	WR	G	18.2	22.2							CEL	R	Lo	2	13
14	V8, S-17	ILCC	C		4	480		△	Own	D	1	LI	M(b)	18	NA	40'4"	18¼°	WR	G	18.2	22.2	HM	G	WR	16.2	16.2	Ge	CEL	R	Lo	2	14
15	Dodge 6, D-41, D-42	ILCC	C		4	360(g)		(h)	Own	D	1	LI	M		NA	NA(j)	18¾°	WR	G	18.2	21.4							DTR	R	N	2	15
16	Ford♦ 6, 1HA, V8, 1BA												M		41'0"			WR	Own	17.7										T	2	16
17	Henry J 4, 513												M		35'0"			WR	Own	18.2										T	1	17
18	6, 514												M		35'0"			WR	Own	18.2										T	1	18
19	Hudson 6, 4B 5B	IC	C		4⅞	386	107	2086-9⅛	Mo	D	⅞	L	M	18		39'4"	30	WR	G	18.2	20.2							CEL	R	Lo	2	19
20	6, 6B, 7B, 8, 8B	IC	C		4⅞	386	107	2086-9⅛	Mo	D	1	L	M	18		42'4"	30	WR	G	20.4	25.6							CEL	R	Lo	2	20
21	Kaiser 6, 511, 512												M					WR	Own	18.2										T	2	21
22	Lincoln♦ V8, 1EL												M			43'10"		WR	G	22.3										T	2	22
23	V8, 1EH												M			44'10"		WR	G	22.3										T	2	23
24	Mercury♦ V8, 1CM	IC	C										M		42'6"			WR	G	18.2										T	2	24
25	Nash 6, 5210	IC	C		3½	110	NA	810-10⅝	De-Mo	D	⅞	N	M	15	NA	NA	18°10'	WR	G	20.0	25.0	N						BS	R	T	2	25
26	6, 5240	IC	C		5⅛	100	NA	920-8⅝	De-Mo	D	1	N	M	18	NA	NA	17°43'	WR	G	20.0	26.0	N						BS	R	T	2	26
27	6, 5260	IC	C		5⅛	115	NA	1000-8⅝	De-Mo	D	1	LI	M	18	NA	NA	17¾	WR	G	20.0	26.0	N						BS	R	T	2	27
28	Oldsmobile V8, 88	IC	C		3⅛	325	100	1865-9½	De	Le	1½	L	M(b)	18	44'5"	41'8"	17¾°	BN	S	21.3	25.7	Hy	S	BN	21.3	25.7	Be	Sym	R	T	2	28
29	V8, 98	IC	C		3⅛	325	100	1865-9½	De	Le	1½	L	M(b)	18	45'2"	42'5"	17¾°	BN	S	21.3	25.7	Hy	S	BN	21.3	25.7	Be	Sym	R	T	2	29
30	Packard 6, 200, 250, 300, 400	IP	C		4¼	300(m)	90	(n)	De-Mo	D	1	LI	M	18	NA	NA	17½°	WR	G	20.4(a)	28.3(y)							SI	R	T	1	30
31	Plymouth 6, P-22, P-23	ILCC	C		4	360		( )	Own	D	1	LI	M	17½	NA	NA(u)	18¾°	WR	G	18.4	21.4							DTR	R	N	2	31
32	Pontiac 6, 25; 8, 27	ILCC	C	15⅛	3⅛	290	95	1875(v)	De	D	1	L	M	18		39'7"	22°	WR	S	19	22.2							LP	F	N	2	32
33	Studebaker 6, 12G	IC	C		4⅞	280	106	1440-9⅛	Ho-Mo	D	1	LI	M	18	21'3"	19'9"	23°	CL-WR	Ro-S	15.4	19.8							CEL	R	Lo	2	33
34	V8, 3H	IC	C		4⅞	298	114	1565-9⅝	Ho-Mo	D	1	LI	M	18	21'3"	19'9"	23°	CL-WR	Ro-S	18.5	24.0							CEL	R	Lo	2	34
35	Willys 6, 665	ILCC	C	17½	3½	110	110	810	Mo	D	⅞	N	M	18	39'4"	38'0"	19°	CR	G	20.2	23.7							L	R	T	2	35

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
△—R—2090, L—2095 @ 11".
(a)—C-51—R-1850, L-1925 @ 11"; C-52 and C-55—R-2095, L-2190 @ 11"; C-53—R-2526, L-2630 @ 11"; C-54—R-2285, L-2380 @ 11".
(b)—Power steering optional at extra cost.
(c)—C-55—46' 5".
♦—1951 Specifications. 1952 data not available at time of going to press.
(d)—C-55—18.2.
(e)—C-55—22.2.
(f)—R-1925, L-2000 @ 11".
(g)—D-42—385.
(h)—D-41—R-1470, L-1535 @ 88¾"; D-42—R-1675, L-1740 @ 11".
(j)—D-42—41' 1".
(m)—400—302.
(n)—200 and 250 Sports Coupe—1950 @ 10⅛"; 250 Convertible Coupe and 300—2040 @ 10⅛", 400—2180 @ 10".
(q)—250, 300 and 400—22.3.
(r)—250, 300 and 400—30.9.
(t)—P-22—R-1470, L-1535 @ 88¾"; P-23—R-1600, L-1665 @ 88¾".
(u)—P-23—39' 8".
(v)—27—1925.
(x)—52—44' 0". 72R—45' 6".
(y)—52—41' 6". 72R—43' 0".
Be—Belt.
BN—Ball nut.
BR—Bevel gear and rack.
BS—Ball and socket.
BW—Ball bearing, worm and nut.
C—Coil.
CEL—Center, equal length tie rods.
CL—Cam and lever.
CP—Center point.
CR—Cam and roller.
Cs—Crankshaft.
D—Direct.
De—Delco.
DL—Drag line.
DTR—Direct, double tie rod.
G—Gemmer Mfg. Co.
Ge—Generator.
HM—Hydraulic-mechanical.
Ho—Houde.
Hy—Hydraulic.
IBLS—"I" beam, longitudinal spring.
IC—Independent with coil springs.
ILCC—Independent, lateral control with coil springs.
IP—Independent parallelogram.
ISL—Independent, short and long arm.
L—Link.
Le—Lever.
LI—Linkless.
Lo—Longitudinal.
LP—Link, parallelogram.
M—Mechanical.
Mo—Monroe.
N—No or none.
NA—Not available.
P—Power.
PL—Parallel, drag link.
R—Rear.
Ro—Ross Gear & Tool Co.
S—Saginaw Steering Gear Div.
SI—Side idler.
Sym—Symmetrical.
T—Transverse.
Tub—Tubular.
WR—Worm and roller.

For Directory of the Manufacturers listed above, see page 338

WHEEL ALIGNMENT, AND REAR SUSPENSION

Line Number	PASSENGER CAR MAKE AND MODEL	ALIGNMENT: Kingpin: Inclination at Camber (deg.)	Kingpin: Diameter	Kingpin: Bearings: Upper	Kingpin: Bearings: Lower	Kingpin: Bearings: Thrust	Wheel Alignment: Caster (deg.)	Wheel Alignment: Camber (deg.)	Wheel Alignment: Toe In (Outside tread in.)	Steering Knuckle Type	Wheel Spindle: Diameter: Inner Bearing	Wheel Spindle: Diameter: Outer Bearing	Wheel Spindle: Thread Size	Wheel Spindle: Bearing Type	REAR SUSPENSION: Spring: Type	Spring: Material	Spring: Length	Spring: Width	Spring: No. Leaves or Coil I. D.	Spring: Spring Rate (lb. per in.)	Spring: Rate at Wheel (lb. per in.)	Spring: Normal Load (lbs. at rated height)	Shock Absorbers: Make	Shock Absorbers: Type	Shock Absorbers: Piston Diameter	Line Number
1	Buick 8, 40	$4\frac{1}{4}$ @ .375	.8615	Bu	Bu	B	$+\frac{1}{4}$ to $+1\frac{1}{2}$	$+\frac{7}{8}$ to $-\frac{1}{8}$	$\frac{1}{16}$–$\frac{1}{8}$	RE	1.374	.643	$\frac{7}{8}$–16	B	CS	CS	MS	$20\frac{1}{4}$	$5\frac{1}{2}$	$\frac{21}{32}$	94	95	975–$9\frac{7}{8}$	De	Le	$1\frac{1}{2}$	1
2	8, 50	$4\frac{1}{4}$ @ .375	.8615	Bu	Bu	B	$+\frac{1}{4}$ to $+1\frac{1}{2}$	$+\frac{7}{8}$ to $-\frac{1}{8}$	$\frac{1}{16}$–$\frac{1}{8}$	RE	1.374	.643	$\frac{7}{8}$–16	B	CS	CS	MS	$19\frac{3}{8}$	$5\frac{1}{2}$	$\frac{21}{32}$	100	107	1010–$9\frac{7}{8}$	De	Le	$1\frac{1}{2}$	2
3	8, 70	$4\frac{1}{4}$ @ .375	.8615	Bu	Bu	B	$+\frac{1}{4}$ to $+1\frac{1}{2}$	$+\frac{7}{8}$ to $-\frac{1}{8}$	$\frac{1}{16}$–$\frac{1}{8}$	RE	1.374	.643	$\frac{7}{8}$–16	B	CS	CS	MS	$19\frac{3}{8}$	$5\frac{1}{2}$	$\frac{21}{32}$	110	117	1100–$9\frac{7}{8}$	De	Le	$1\frac{1}{2}$	3
4	Cadillac V8, 62	5° 51′ @ Ca	1.0000	BB	BB	B	$-\frac{1}{2}$ to $+\frac{1}{2}$	$-\frac{3}{8}$ to $+\frac{3}{8}$	$\frac{1}{8}$–$\frac{3}{8}$	RE	2.963	2.250	$\frac{3}{4}$–20	B	LL	SE	9260	$54\frac{1}{2}$	2		105		1110	De	D	1	4
5	V8, 60	5° 51′ @ Ca	1.0000	BB	BB	B	$-\frac{1}{2}$ to $+\frac{1}{2}$	$-\frac{3}{8}$ to $+\frac{3}{8}$	$\frac{1}{8}$–$\frac{3}{8}$	RE	2.963	2.250	$\frac{3}{4}$–20	B	LL	SE	9260	$54\frac{1}{2}$	2		115		1090	De	D	1	5
6	V8, 75	5° 51′ @ Ca	1.0000	BB	BB	B	$-\frac{1}{2}$ to $+\frac{1}{2}$	$-\frac{3}{8}$ to $+\frac{3}{8}$	$\frac{1}{8}$–$\frac{3}{8}$	RE	2.963	2.250	$\frac{3}{4}$–20	B	LL	SE	9260	$56\frac{1}{2}$	2		135		1270	De	D	$1\frac{3}{8}$	6
7	Chevrolet 6, 1500, 2100†	$3\frac{1}{2}$–$4\frac{1}{2}$ @ 0	.8663	Bu	Bu	B	0 to 1	0 to 1	0 $\frac{1}{8}$	RE	1.280	.749	$\frac{3}{4}$–20A	B	LL	SE	CAS	49	$1\frac{3}{4}$	7	108	120	1075	De	D	1	7
8	Chrysler 6, C-51	5–$6\frac{1}{2}$ @ 0	.7953	SR	SLB	B	−1 to −3	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	$1\frac{3}{4}$		95		(b)	Own	D	1	8
9	V8, C- 5	5–$6\frac{1}{2}$ @ 0	.7953	SR	SLB	B	−1 to −3	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	2		95		(c)	Own	D	1	9
10	V8, C-52, C-54	5–$6\frac{1}{2}$ @ 0	.7953	SR	SLB	B	−1 to −3	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.312	.875	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	2		98		(d)	Own	D	1	10
11	V8, C-53	$6\frac{1}{2}$–8 @ 0	.9363	SR	SLB	B	−1 to −3	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	E	1.375	.875	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	$2\frac{1}{2}$		140		(e)	Own	D	1	11
12	Crosley 4, CD	$6\frac{1}{2}$ @ 0	.6250	BB	BB		$7\frac{1}{2}$	2	$\frac{1}{16}$–$\frac{1}{8}$	RE	.875	.625	$\frac{5}{8}$–18	CC	LL	CL	AS	$21\frac{7}{8}$	$1\frac{1}{2}$	7	125		500	De	D	1	12
13	4, VC	$6\frac{1}{2}$ @ 0	.6250	BB	BB		$7\frac{1}{2}$	2	$\frac{1}{16}$–$\frac{1}{8}$	RE	.875	.625	$\frac{5}{8}$–18	CC	CS	CS	S	$13\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{3}{4}$	94		363–$9\frac{1}{2}$	De	D	1	13
14	De Soto 6, S-15, V8, S-17	5–$6\frac{1}{2}$	.7953	SR	SLB	B	−1 to −3	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	$1\frac{3}{4}$	8	95	(q)	(b)	Own	D	1	14
15	Dodge 6, D-41	5–$6\frac{1}{2}$	.7953	SR	SLB	B	−1 to +1	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	$1\frac{3}{4}$		95		(f)	Own	D	1	15
16	6, D-42	5–$6\frac{1}{2}$	.7953	SR	SLB	B	−1 to +1	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	$1\frac{3}{4}$		95		(f)	Own	D	1	16
17	Ford♣ 6, 1HA, V8, 1BA	$5\frac{1}{4}$					$+\frac{1}{2}$ to −1	0 to +1	$\frac{1}{16}$–$\frac{3}{16}$																		17
18	Henry J 4, 513	$4\frac{1}{2}$					−1 to +1	$+\frac{1}{4}$ to +1	$\frac{1}{16}$–$\frac{3}{16}$																		18
19	6, 514	$4\frac{1}{2}$					−1 to +1	$+\frac{1}{4}$ to +1	$\frac{1}{16}$–$\frac{3}{16}$																		19
20	Hudson 6, 4B	3° 36′			St	St	B	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{2}$	0–$\frac{1}{8}$	RE	1.250	.750	$\frac{11}{16}$–18	TR	LL	SE	AS	54	$1\frac{3}{4}$	8	120	120	950	Mo	D	$\frac{7}{8}$	20
21	6, 5B	3° 36′			St	St	B	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{9}{16}$ to $1\frac{1}{2}$	0–$\frac{1}{8}$	RE	1.250	.750	$\frac{11}{16}$–18	TR	LL	SE	AS	54	$1\frac{3}{4}$	8	120	120	950	Mo	D	$\frac{7}{8}$	21
22	6, 6B, 7B, 8, 8B	3° 36′			St	St	B	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{2}$	0–$\frac{1}{8}$	RE	1.250	.750	$\frac{11}{16}$–18	TR	LL	SE	AS	54	$1\frac{3}{4}$	8	120	120	950	Mo	D	1	22
23	Kaiser 6, 511, 512																										23
24	Lincoln♣ V8, 1EH, 1EL	5					0 to $-1\frac{1}{2}$	0 to $+\frac{3}{4}$	$\frac{1}{16}$–$\frac{3}{16}$																		24
25	Mercury♣ V8, 1CM	5					0 to $-1\frac{1}{2}$	0 to $+\frac{3}{4}$	$\frac{1}{16}$–$\frac{3}{16}$						LL	SE											25
26	Nash 6, 5210	8		(x)			$+\frac{3}{4}$ to $+1\frac{1}{4}$	$+\frac{1}{4}$ to $+\frac{3}{4}$	$\frac{1}{16}$–$\frac{1}{8}$	(x)	1.250	.750	$\frac{3}{4}$–16	CR	LL	SE	9260	45	$1\frac{3}{4}$		100(y)	NA	650–$1\frac{1}{8}$	De-Mo	D	$\frac{7}{8}$	26
27	6, 5240, 5260	$6\frac{1}{2}$		(x)	SR	Th	B	0 to $+\frac{1}{2}$	$+\frac{1}{4}$ to $-\frac{1}{4}$	$\frac{1}{16}$–$\frac{1}{8}$	(x)	1.250	.750	$\frac{3}{4}$–16	CR	CS	CS	9260		$4\frac{3}{4}$		125(z)	NA	870–$10\frac{1}{8}$	De-Mo	D	1	27
28	Oldsmobile V8, 88	45° 55′ 13″ @ 0	.8618	Bu	Bu		0 to $-\frac{3}{4}$	$-\frac{1}{4}$ to $+\frac{3}{4}$	$\frac{1}{16}$–$\frac{1}{8}$		1.280	.749	$\frac{3}{4}$–20	BC	LL	SE	AS	56	$2\frac{1}{2}$	5	95	115	960–$1\frac{1}{8}$	De	D	1	28
29	V8, 98	45° 55′ 13″ @ 0	.8618	Bu	Bu		0 to $-\frac{3}{4}$	$-\frac{1}{4}$ to $+\frac{3}{4}$	$\frac{1}{16}$–$\frac{1}{8}$		1.280	.749	$\frac{3}{4}$–20	BC	LL	SE	AS	56	$2\frac{1}{2}$	5	100	120	975–$1\frac{1}{8}$	De	D	1	29
30	Packard 8, 200, 250, 300, 400	5° 50′ @ 0	.8663	Ne	SLB	B	$-\frac{1}{2}$ to $-1\frac{1}{2}$	0 to $+\frac{3}{4}$	0 $\frac{1}{8}$	RE	1.312	.812	$\frac{3}{4}$–16	TR	LL	SE	SM	$54\frac{5}{8}$	$2\frac{1}{2}$	5	110	110	(g)	De-Mo	D	1	30
31	Plymouth 6, P-22, P-23	5–$6\frac{1}{2}$ @ 0	.7953	SLB	SLB	B	−1 to +1	$-\frac{3}{8}$ to $+\frac{3}{8}$ (a)	0 $\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16A	TR	LL	SE	AS	$53\frac{5}{8}$	$1\frac{3}{4}$		95		(j)	Own	D	1	31
32	Pontiac 6, 25; 8, 27	$4\frac{3}{4}$–$5\frac{1}{4}$	.8615	BB		B	$-\frac{3}{4}$	0	0 $\frac{1}{8}$	RE	1.280	.750	$\frac{3}{4}$–20	B	LL	SE	S	58	2	5	100	100	(k)	De	D	1	32
33	Studebaker 6, 12G	6 @ 0	(r)	Bu	Ne	B-TR	$-1\frac{3}{4}$	0 to +1	$\frac{1}{16}$–$\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16	TR	LL	SE	5150	50	$2\frac{1}{2}$	4	110	115	700	Ho-Mo	D	1	33
34	V8, 3H	6 @ 0	(r)	Bu	Ne	B-TR	$-1\frac{3}{4}$	0 to +1	$\frac{1}{16}$–$\frac{1}{8}$	RE	1.250	.750	$\frac{3}{4}$–16	TR	LL	SE	5150	50	$2\frac{1}{2}$	4	110	115	700	Ho-Mo	D	1	34
35	Willys 6, 685	$8\frac{1}{4}$	(v)	Th	Th	Th	+1 to −1	$1\frac{1}{4}$ to $1\frac{3}{4}$	$\frac{3}{16}$–$\frac{5}{16}$			1.280	.780	$\frac{5}{8}$–18	RI	LL	SE	4068	48	2	7	100	NA	710	Mo	D	$\frac{7}{8}$	35

ABBREVIATIONS

†—Powerglide chassis model available at extra cost.
(a)—Left side to be $\frac{1}{4}$ to $\frac{1}{2}$ higher than right side within these limits.
(b)—C-51 and S-15—R-720, L-760.
(c)—C-55—R-760, L-800.
(d)—C-52 and C-54—R-880, L-920.
(e)—C-53—R-1400, L-1450.
(f)—D-41—R-640, L-680; D-42—R-680, L-720.
(g)—200 and 250 Sports Coupe—950, 250 Convertible Coupe, 300 and 400-1030.
(j)—P-22—R-560, L-600 @ $53\frac{5}{8}$; P-23—R-600, L-640 @ $53\frac{5}{8}$.
(k)—R-870, L-830.
(q)—R-720, L-760.
(r)—Upper—1.250, lower—1.125.
(v)—Integral with knuckle support.
(x)—Integral with spindle.
(y)—145 optional.
(z)—175 optional.
A—American National Thread.
AS—"Amola" steel.
B—Ball.
BB—Bronze bushing.
BC—Ball and cone.
Bu—Bushing.
Ca—Camber.
CAS—Chrome alloy steel.
CC—Cone and cup.
CL—Cantilever.
CR—Cone and roller.
CS—Coil spring.
D—Direct.
De—Delco.
E—Elliott.
Ho—Houde.
Le—Lever.
LL—Longitudinal leaf.
Mo—Monroe.
MS—Manganese steel.
N—No or none.
NA—Not available.
Ne—Needle.
RE—Reverse Elliot.
RI—Roller.
SE—Semi-Elliptic.
SLB—Steel backed, lead bronze.
SM—Silico-manganese.
SR—Straight roller.
St—Steel.
Th—Threaded.
TR—Tapered roller.
Y—Yes.

♣—1951 Specifications. 1952 data not available at time of going to press.

For Directory of the Manufacturers listed above, see page 338

1952 TRUCK SPECIFICATIONS

KEY TO DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published here with are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost. If it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix.
BC—Brockway Continental.
BL—Brown-Lipe.
Bu or **Bud**—Buda.
BW—Bendix-Westinghouse.
C—Chevrolet.
Cl or **Cla**—Clark.
Con—Continental.
Cum—Cummins-Diesel.
Eat—Eaton.
F—Ford.
Fu—Fuller.
H—Hotchkiss.
Her—Hercules.
HS—Half-Scott.
N.P.—New Process.
O or **Ow**—Own.
Op or **Opt**—Optional.
Shu—Shuler.
Spi—Spicer.
T or **Tim**—Timken-Detroit Axle Co.
Tw—Timken-Detroit—Westinghouse.
TW—Timken-Detroit—Wisconsin.
WG—Warner Gear.
Wau—Waukesha.
W or **Wis**—Wisconsin.

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
6—All wheels.

REAR AXLE
Final Drive and Type

B—Bevel.
CD—Chain Drive.
F—Full-floating.
H or **Hy**—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating.
T—Torque Tube.

GEAR RATIOS

(**) Only one ratio.

DRIVE AND TORQUE

H—Hotchkiss (springs).
R—Radius Rods.
I—Parallel Torque Rods.
T—Torque Arm.

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Converted Ford or Chevrolet Model.
^—Denotes "Includes Cab" when used with weights.
•—Gross Combination Weight.

AUTOCAR

‡—Auxiliary transmission standard.
††—Front, 12.00/24; rear 14.00/24.
♦—Equipped with two speed torque divider having ratios of 1.04–1.68 or 1.22–1.68.

CHEVROLET

†—Forward control chassis for Door-to-Door delivery bodies. These chassis do not have cowl.
'—Includes spare tire, full fuel tank and cooling system.
^—7.50/20 can be used on the front with no decrease in G.V.W. when 8.25/20 are used on dual rear wheels.
::—Own Loadmaster engine available at extra cost.
♦—8.25/20 front tires are required when 9.00/20 dual rears are used.
§—4 speed transmission available.
††—Also available in 5.14 ratio.
□—5.43 available.
□□—Two speed axle available.

CORBITT

■—Available with optional tires and axles for less G.V.W. rating.
‡‡—Also available with Cummins HRB 600, HRBB600 and NHB600.

CROSLEY

□□—Pick-up truck only; panel delivery 1360.

DODGE

^—Front only; Rear 7.00/16S.
•—Front only; Rear 8.25/16.
‡—Front only; Rear 6.50/20S.
¶—Front only; Rear 7.50/20.
♦—Front only; Rear 9.00/20.
†—Front only; Rear 10.00/20.

DUPLEX

‡—Torque Divider. Timken T70-2 speed.

FEDERAL

•—Diesel engine obtainable.
♦—Five speed transmission obtainable.
♦—Auxiliary transmission Spicer 6231B with 3 forward speeds.
‡—55M, 60M and 65M have single speed, double reduction rear axle.
:—Radius rods obtainable.
‡‡—Diesel engine obtainable.
§—Auxiliary transmission Spicer 703F or 8031 with 3 forward speeds.
‡‡—Overdrive optional.
^—Torque Divider Timken T70-2 speed, T50 obtainable.
†—SW3013 obtainable.
♦—SW3010 or SD3020 obtainable.

KENWORTH

♦♦—Timken T13129 PA Trailing Axle.

OSHKOSH

■—1091 cu. in.
□□—Hydraulic coupling.
††—Buda 6DC844 optional.
••—Other Cummins 6 cylinder engines optional.
□—Includes cab and dual tires on front, center and rear axles.

REO

♦—Model 331 engine can be furnished.
♦—Two speed axle available.
^—Double reduction and 2 speed available.

STERLING

†—Rear only; Front 11.00/24.
‡—Rear only; Front 11.00/22.
♦—Own EJ three speed auxiliary transmission furnished.
§—Timken T70 two speed torque divider furnished.
'—Rear only; Front 12.00/24.
■—Rear only; Front 14.00/24.
•—Rear only; Front 16.00/24.
●—1125 cu. in.
††—Own model FJ three speed auxiliary transmission furnished.
‡‡—Timken T76 two speed transfer case furnished.
♦♦—Timken T77 two speed transfer case furnished.
''—Also available with Cummins Diesel engine and appropriate transmission.

STUDEBAKER

♦—Two speed 6.13–8.10 and H.D. 6.20 or 6.80 optional.
♦♦—Two speed 6.13–8.10 optional.

TRUCKSTELL

•—Single front, dual rear.
□□—With Baumis auxiliary transmission.
♦♦—With Baumis power divider.
♦—2 speed locked in low axle ratio.

WARD LA FRANCE

‡—Available with optional rear axles.
^^—Available with 11.00/22 or 12.00/20 tires for G.V.W. of 60,000 lbs and optional front and rear axles.
♦♦—Auxiliary transmission Fuller 3A65, 3B65, 3A92 and 3B92.

WHITE

♦—2-speed optional.

WHITE-FREIGHTLINER

■††—Buda 6DA844 Diesel or Cummins NHB600.

WILLYS

•—Complete vehicle-Pick-up Type body.
‡—Three speed transmission, 2 speed transfer case.
†—Or Spicer 53-2 at discretion of manufacturer only.

1952 TRUCK SPECIFICATIONS

MAKE AND MODEL	WHEEL-BASE: Minimum Standard	WHEEL-BASE: Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear): Standard Front and Rear	TIRE SIZES (D-dual rear S-single rear): Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Autocar(T) C65T	142	142	*50000	9380	10.00/20	11.00/22	Own 501	6-4½x5½	501	6.0	400	165-2700	Own DF-5	5	Own FT	2F	H	5.64-9.10
C70	164	200	30000	10250	10.00/20	11.00/22	Own 447	6-4¼x5½	447	6.0	353	145-2700	Own TF-5	5	Own FT	2F	H	6.40-9.10
(T) C70T	148	164	*45000	10000	10.00/20	11.00/22	Own 447	6-4¼x5½	447	6.0	353	145-2700	Own TF-5	5	Own FT	2F	H	5.64-9.10
C70D	148	164	28000	10700	10.00/20	11.00/22	Own 447	6-4¼x5½	447	6.0	353	145-2700	Own TF-5	5	Own TK	2F	H	6.13-9.30
U70	128	163	30000	10100	10.00/20	11.00/22	Own 447	6-4¼x5½	447	6.0	353	145-2700	Own UTF-5	5	Own FT	2F	H	6.40-9.10
(T) U70T	112	112	*45000	10000	10.00/20	11.00/22	Own 447	6-4¼x5½	447	6.0	353	145-2700	Own UTF-5	5	Own FT	2F	H	5.64-9.10
C70S	164	200	32000	10700	10.00/20	11.00/22	Own 501	6-4½x5½	501	6.0	400	165-2700	Own TF-5	5	Own TK	2F	H	6.13-9.30
(T) C70TS	148	164	*50000	10550	10.00/20	11.00/22	Own 501	6-4½x5½	501	6.0	400	165-2700	Own TF-5	5	Own TK	2F	H	5.64-9.30
U70S	128	163	32000	10825	10.00/20	11.00/22	Own 501	6-4½x5½	501	6.0	400	165-2700	Own UTF-5	5	Own TK	2F	H	6.13-9.30
(T) U70TS	112	112	*50000	10500	10.10/20	11.00/22	Own 501	6-4½x5½	501	6.0	400	165-2700	Own UTF-5	5	Own TK	2F	H	5.64-9.30
C90	182	200	36000	11700	11.00/20	12.00/24	Own 501	6-4½x5½	501	6.0	400	165-2700	Own TF-5‡	5	Own G	2F	H	6.01-10.40
(T) C90T	148	164	*60000	11400	11.00/20	12.00/24	Own 501	6-4½x5½	501	6.0	400	165-2700	Own TF-5	5	Own G	2F	H	5.34-10.70
C90D	171	171	44000	13500	11.00/24	††	Own 501	6-4½x5½	501	6.0	400	165-2700	Own TF-4‡	4	Tim 79748	2F	H	7.69-11.38
U90	128	163	38000	11450	11.00/20	12.00/24	Own 501	6-4½x5½	501	6.0	400	165-2700	Own UTF5	5	Own G	2F	H	6.01-10.40
(T) U90T	112	112	*60000	11200	11.00/20	12.00/24	Own 501	6-4½x5½	501	6.0	400	165-2700	Own UTF5	5	Own G	2F	H	5.34-10.40
(T)(D) DC75T	142	157	*60000	12750	10.00/20	11.00/22	Cum HRB600	6-5½x6	743	15.5	537	165-1800	Own TF5‡	5	Own TK	2F	H	5.64-9.30
(D) DC100	163	219	36000	13800	10.00/20	12.00/24	Cum HRB600	6-5½x6	743	15.5	537	165-1800	Spi 8041‡	4	Own G	2F	H	6.01-10.40
(T)(D) DC100T	144	159	*70000	13650	10.00/20	12.00/24	Cum HRB600	6-5½x6	743	15.5	537	165-1800	Spi8041‡	4	Own G	2F	H	5.34-10.40
(D) DC100D	164	164	54000	16500	12.00/24	14.00/24	Cum HRB600	6-5½x6	743	15.5	537	165-1800	Spi 8041‡	4	Tim 79748	2F	H	7.69-11.38
Available																		
(c.o.e.) 200			15000	5500^	7.00/20D	8.25/20	Wau BM	6-3⅝x4½	263	5.9	178	78-2800	WG T9	4	Tim E100DPH	HF	H	**-8.20
(c.o.e.) 225			16500	6200^	7.50/20D	8.25/20	Wau BZ	6-4x4½	320	5.9	235	105-3200	WG T97	4	Tim E100DPH	HF	H	**-8.20
(c.o.e.) 250			20000	6400^	8.25/20D	9.00/20	Wau BZ	6-4x4½	320	5.9	235	105-3200	Fu 5A330	5	Tim H100DPH	HF	R	**-6.80
(c.o.e.) 400			22000	6800^	9.00/20D	10.00/20	Wau BZ	6-4x4½	320	5.9	235	105-3200	Fu 5A330	5	Tim L100DPH	HF	R	**-6.83
(c.o.e.) 500			23000	7500^	9.00/20D	10.00/20	Wau MZA	6-4½x4⅝	404	5.6	285	130-3000	Fu 5F430	5	Tim L100DPH	HF	R	**-8.83
(c.o.e.) 550			28000	8100^	10.00/20D	11.00/20	Wau MZA	6-4½x4⅝	404	5.6	285	130-3000	Fu 5F430	5	Tim Q100DPH	HF	R	**-7.80
(c.o.e.) 550X			32000	9600^	10.00/20D	11.00/24	Wau MZA	6-4½x4⅝	404	5.6	285	130-3000	Fu 5F430	5	Tim S200DPH	2F	R	**-7.84
(c.o.e.) 600			28000	10000^	10.00/20D	11.00/24	Wau 140 GK	6-4½x5½	525	6.4	425	172-2600	Fu 5A650	5	Tim R100P	HF	R	**-7.40
(c.o.e.) 601			28000	10900^	10.00/20D	11.00/24	Wau 145 GK	6-5¼x6	779	6.2	595	240-2400	Spi 7851	4	Tim R100P	HF	R	**-7.40
(D) (c.o.e.) 602			28000	11200^	10.00/20D	11.00/24	Cum HB600	6-4⅞x6	672	17.	500	150-1800	Spi 7851	4	Tim R100P	HF	R	**-7.40
Biederman NSH	130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6-4x4½	339	6.9	272	131-3200	Fu 5A330	5	TimH700DPH	SF	H	**-7.2
NSD	130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6-4x4½	339	6.9	272	131-3200	Fu 5A330	5	Tim H700DPH	2D	H	6.13-8.15
NSR	142	171	21000	7420	8.25/20D	10.00/20	Her JXLD	6-4x4½	339	6.9	272	131-3200	Spi 3541UP	5	Tim H110DPH	HFd	H	**-6.4
HL	93	197	30000	12200	10.00/24D	12.00/24	Wau 140 GK	6-4½x5½	525	6.4	425	172-2600	Spi 6252A	5	Tim R200	HFd	H	6.41-8.37
Brockway 88WH	156	188	17000	6000	8.25/20	8.25/20	BC 388	6-3⅝x4⅝	290		215	100-2900		4	Tim	HyF	H	**-8.80
128W	138	184	21000	6700	9.00/20	9.00/20	BC 408	6-4x4⅝	330		250	111-2800		5	Tim	HyF	R	**-7.20
146W	138	212	25000	7500	9.00/20	10.00/20	BC 408	6-4x4⅝	330		250	111-2800		5	Tim	HyF	R	**-7.80
148W	138	212	27000	7850	10.00/20	10.00/22	BC 428X	6-4¼x4⅞	427		335	132-2800		5	Tim	HyF	R	6.83-7.80
151W	141	209	30000	9250	10.00/20	10.00/22	BC 428X	6-4¼x4⅞	427		335	132-2800		5		2F	R	7.64-8.38
152W	141	221	32000	9300	10.00/20	11.00/20	BC 428X	6-4¼x4⅞	427		335	132-2800		5		Fd	R	6.14-9.14
153W	141	221	36000	9600	11.00/20	11.00/22	BC 428X	6-4¼x4⅞	427		335	132-2800		5		2F	R	7.21-8.38
154W	142	161	45000	8800	10.00/20	10.00/22	BC 428X	6-4¼x4⅞	427		335	132-2800		5		Fd	R	6.14-9.14
154WH	153	172	50000	9875	10.00/22	11.00/20	BC 468	6-4⅛x5⅛	513		400	169-2800		5		Fd	R	6.14-9.14
260XW	141	161	60000	10850	11.00/22	11.00/24	BC 488	6-4⅝x5⅝	572		442	203-2800		5		2F	R	6.51-8.69
260XL	141	209	38000	11200	11.00/22	12.00/24	BC 488	6-4⅛x5⅝	513		400	169-2800		5		2F	R	6.51-8.69
260XWL	141	209	38000	11300	11.00/22	12.00/24	BC 488	6-4⅝x5⅝	572		442	203-2800		5		2F	R	6.51-8.69
Brown R6572T	144	166	33000		11.00/22	12.00/24	Con R6572	6-4⅝x5½	572	5.9	440	172-2600	Spi 6252B	5	Tim R100	Hy	H	**-5.28
140GKT	144	166	33000		11.00/22	12.00/24	Wau 140GK	6-4½x5½	525	6.4	425	168-2400	Spi 6252B	5	Tim R100	Hy	H	**-5.28
(D) HB600T	144	166	33000		11.00/22	12.00/24	Cum HB600	6-4⅞x6	672	17.	500	150-1800	Fu 5A650	5	Tim R100	Hy	H	**-5.28
(D) HRB600T	144	166	33000		11.00/22	12.00/24	Cum HRB600	6-5½x6	743	15.	530	165-1800	Fu 5A920	5	Tim R100	Hy	H	**-5.28
(D) NHB600T	144	166	33000		11.00/22	12.00/24	Cum NHB600	6-5½x6	743	15.	575	200-2100	Fu 5A920	5	Tim S200	2F	H	**-6.42
(D) HRBB600T	144	166	33000		11.00/22	12.00/24	Cum HRBB600	6-5½x6	743	15.	500	175-2000	Fu 5A650	5	Tim R100	Hy	H	**-5.28
(D) 6DA844T	144	166	33000		11.00/22	12.00/24	Bu6DC844	6-5½x6½	844		640	210-2100	Spi 8045	4	T m R300		H	
Chevrolet JP	116		4800	*2565	6.00/16S	15S	O-Thrift Mas.	6-3⅛x3⅜	216	6.6	178	92-3400	Own	§3	Own	Hy½	T	**-4.11
JR	125		5800	*2825	15S	7.50/17S	O-Thrift Mas.	6-3⅛x3⅜	216	6.6	178	92-3400	Own	§3	Own	HyF	H	††-4.57
†Fwd. Control JT	125		7000	*2675	15S	7.50/17S	O-Load Mas.	6-3⅞x3⅛	235	6.7	182	92-3400	Own	§3	Own	HyF	H	**-5.14
JS	137		8800	*3185	7.00/17S	7.00/18	O-Thrift Mas.	6-3⅛x3⅜	216	6.6	178	92-3400	Own	4	Own	HyF	H	**-5.14
†Fwd. Control JU	137		10000	*2895	7.00/17S	7.00/18	O-Load Mas.	6-3⅞x3⅛	235	6.7	182	92-3400	Own	4	Own	HyF	H	**-5.14
UJ	137		14000	*3770	6.50/20D	7.50/20	O-Thrift Mas.	6-3⅛x3⅜	216	6.6	178	92-3400	Own	4	Own	HyF	H	□-6.17
UK	161		14000	*3930	6.50/20D	7.50/20	O-Thrift Mas.	6-3⅛x3⅜	216	6.6	178	92-3400	Own	4	Own	HyF	H	□-6.17
(School bus) UL	161		12000	*4170	6.50/20D	7.00/20	O-Thrift Mas.	6-3⅛x3⅜	216	6.6	178	92-3400	Own	4	Own	HyF	H	□-6.17
UVS	137		15000	*4250	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
UWS	161		15000	*4330	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
UYS	179		15000	*4460	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
(c.o.e.) UPS	110		15000	*^4730	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	190	100-3500	Own	4	Own	HyF	H	□□-6.17
(c.o.e.) URS	134		15000	*^4800	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	190	100-3500	Own	4	Own	HyF	H	□□-6.17
(c.o.e.) USS	158		15000	*^4910	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	190	100-3500	Own	4	Own	HyF	H	□□-6.17
(c.o.e.) UP	110		16000	*^4730	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	190	100-3500	Own	4	Own	HyF	H	□□-6.17
(c.o.e.) UR	134		16000	*^4800	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	190	100-3500	Own	4	Own	HyF	H	□□-6.17
(c.o.e.) US	158		16000	*^4910	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	190	100-3500	Own	4	Own	HyF	H	□□-6.17
UV	137		16000	*4250	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
UW	161		16000	*4330	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
UY	179		16000	*4485	7.50/20D	9.00/20^&	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
(School bus) UX	199		16000	*4680	7.50/20D	8.25/20	O-Load Mas.	6-3⅞x3⅛	235	6.7	193	105-3800	Own	4	Own	HyF	H	□□-6.17
Corbitt G101B■	137		22000		9.00/20	10.00/20	Con M6330	6-4x4⅝	330	6.1	248	104-2800	Cla 205V	5	Tim L100	HF	H	4.11-7.40
G301B■	156		26000		10.00/22	11.00/22	Con B6371	6-4½x4½	371	6.0	280	106-2600	Fu 5A43	5	Tim Q200	2F	H	7.77-8.83
G332B■	145		28000		10.00/22	11.00/22	Con B6427	6-4¼x4⅞	427	5.9	325	127-2600	Fu 5A43	5	Tim R300	2F	H	6.41-8.37
G603B34	155		34000		10.00/20	12.00/24	Con R6602	6-4¾x5⅝	602	5.9	464	200-2600	Fu 5A65	5	Tim U200	2F	H	5.91-9.76
(T) G101T20	137		20000		8.25/20	9.00/20	Con M6330	6-4x4⅝	330	6.1	248	104-2800	Cla 205V	5	Tim H100	HF	H	**-5.29
(T) G302T22	137		22000		9.00/20	10.00/22	Con B6427	6-4¼x4⅞	427	5.9	325	127-2600	Fu 5A43	5	Tim L100	HF	H	**-5.29
(T) G402T25	145		25000		10.00/20	10.00/22	Con T6427	6-4¼x4⅞	427	6.3	336	151-2600	Fu 5A43	5	Tim Q100	HF	H	5.29-6.83
(T) G602T27	147		28000		10.00/22	11.00/24	Con R6572	6-4⅝x5⅝	572	5.9	440	189-2600	Spi 6253	5	Tim R100	HF	H	6.17-7.40
(T)(D) D202T20	137		20000		8.25/20	9.00/20	Her DJXH	6-3⅝x4½	298	15.	233	99-2600	Cla 205VO	5	Tim H300	2dF	H	6.13-8.15
(T)(D) D401T23	145		23000		10.00/20	10.00/22	Her DWXD	6-4¼x4⅝	404	15.	404	135-2600	Fu 5A430	5	Tim L300	2dF	H	6.32-8.22
(T)(D) D402T25	145		25000		10.00/20	10.00/22	Her DWXLD	6-4¼x5	426	15.	338	142-2600	Fu 5A430	5	Tim Q300	2dF	H	6.53-8.53
(T)(D) D404T26	145		26000		10.00/22		Cum JBS600	6-4½x5	401		345	150-2500	Fu 5A620	5	Tim Q100	HF	H	5.29-6.83
(T)(D) D601T27	150		27000		10.00/22	11.00/24	Her DRXC	6-4⅝x5½	529	15.	400	147-2200	Spi 6253	5	Tim R300	2dF	H	6.41-8.37
(T)(D) D800 Ser.‡‡	160		33000		10.00/22	11.00/24	Cum HB600	6-4⅞x6	672	17.	500	150-1800	Fu 5C720	5	Tim R100	HF	H	5.29-6.83

For References and Abbreviations see page 149

For Directory of the Manufacturers listed above, see page 338

1952 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEELBASE				TIRE SIZES (D-dual rear S-single rear)		ENGINE DETAILS						TRANSMISSION		REAR AXLE			
	Minimum Standard	Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	Standard Front and Rear	Maximum Authorized Tire Size (Duals unless noted)	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Make and Model	Forward Speeds	Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Crosley																		
B	80		2130	1330**	4.50/12		Own	4-2½x2¼	44	7.0	33	25.55200	WG-ASI-T9	3	Spi	2F		** -5.17
Diamond T																		
322	130	190	14500	4800	6.00/20	8.25/20		6-3⅛x4½	238		198	100-3200		4		HF	H	5.57-6.33
420	130	250	16300	5800	6.00/20	9.00/20		6-3⅝x4½	283		201	94-3000		4		HF	H	5.57-6.33
520	130	250	18000	6200	7.00/20	9.00/20		6-3⅝x4¼	282		206	101-3000		4		HF	H	5.57-6.33
620	130	250	21200	6800	7.50/20	10.00/20		6-4x4½	329		240	113-3000		5		SF	H	6.5 -7.16
622	130	250	21200	6800	7.50/20	10.00/20		6-4x4½	330		266	144-3000		5		SF	H	6.5 -7.16
660	133	157	23000	8200	9.00/20	10.00/20		6-4⅛x4½	427		348	162-2700		5		SF		6.5 -7.16
720	133	211	25000	8800	9.00/20	11.00/22		6-4⅛x4½	427		348	162-2700		5		SF	R	Dual Rge
722	133	211	25000	9000	9.00/20	11.00/22		6-4⅛x5¼	474		364	162-2600		5		SF	R	5.28-6.83
(D) 723	133	211	25000	9500	9.00/20	11.00/22		6-4½x5	401		360	150-2500		5		SF		Dual Rge
920	145	211	33000	11000	9.00/20	11.00/24		6-4⅝x5½	572		440	190-2600		5		2F	R	5.28-6.83
(D) 921BR	133	199	36000	11200	9.00/20	11.00/22		6-5¼x6	743		540	175-2000		10		2F	R	5.91-7.79
(D) 921FN	147	238	36000	11400	9.00/20	11.00/22		6-5¼x6	743		537	200-2100		10		2F	R	5.91-7.79
(D) 950RS	170	224	36000	14000	9.00/20	12.00/24		6-5¼x6	743		600	300-2100		10		2F	R	5.91-7.79
(D) 951	170	224	36000	14000	9.00/20	12.00/24		6-5¼x6½	844		645	215-2100		10		2F	R	5.91-7.79
(D) 951S	170	224	36000	14000	9.00/20	12.00/24		6-5¼x6½	844		785	280-2100		10		2F	R	5.91-7.79
Dodge																		
B-3-B	108	108	4900		6.00/16S	6.50/16S	Own T-308	6-3¼x4½	218	7.0	175	97-3600	NP-88840	3	Own T-308	H½	H	3.73-4.78
B-3-C	116	116	5600		7.00/15S	7.00/15S	Own T-308	6-3¼x4½	218	7.0	175	97-3600	NP-88840	3	Own T-308	H½	H	4.1 -4.78
B-3-D	116	128	8000		6.00/16S^	7.50/16	Own T-310	6-3½x4½	230	7.0	190	103-3600	NP-88770	3	Own T-310	HyF	H	3.8 -4.89
Rt. Van Sp. B3DU	102	117	7000		*.50/16*	8.25/16S	Own T-164	6-3¼x4½	230	7.0	190	99-3800	NP-88490	3	Own T-164	HyF	H	3.9 -4.89
Rt. Van Sp. B3EU	102	142	10100		7.50/16*	9.00/16S	Own T-165	6-3¼x4½	230	7.0	190	99-3800	NP-88500	4	Own T-165	HyF	H	4.89-5.8
B-3-F	128	152	13500		6.50/20	7.50/20	Own T-314	6-3⅞x4¼	236	6.6	192	109-3800	NP-39790	4	Own T-314	HyF	H	5.62-6.6
B-3-G	128	170	14500		6.50/20¶	8.25/20	Own TX-314	6-3⅞x4¼	236	6.6	192	109-3800	NP-88570	4	Own TX-314	HyF	H	5.62-6.6
B-3-GA	128	152	14500		6.50/20¶	8.25/20	Own TX-314	6-3⅞x4¼	236	6.6	192	109-3800	NP-88570	4	Eat 1350	SFd	H	5.83-6.81
B-3-H	128	192	16000		7.50/20	8.25/20	Own T-316	6-3⅞x4¼	236	6.6	193	109-3800	NP-88570	4	Own T-316	HyF	H	6.28-6.6
B-3-HA	128	192	16000		7.50/20	8.25/20	Own T-316	6-3⅞x4¼	236	6.6	193	109-3800	NP-88570	4	Eat 1350	SFd	H	5.83-6.81
B-3-HM	107	161	16250		7.50/20	8.25/20	Own T-328	6-3⅞x4¼	236	6.6	186	105-3600	NP-88850	4	Own T-328	HyF	H	6.28-6.6
B-3-HMA	161	161	16250		7.50/20	8.25/20	Own T-328	6-3⅞x4¼	236	6.6	186	105-3600	NP-88850	4	Eat 1350	SFd	H	5.83-6.81
B-3-HH	128	192	16000		7.50/20	8.25/20	Own T-316	6-3⅞x4¼	236	6.6	193	109-3800	NP-88570	4	Own T-316	HyF	H	6.28-6.6
B-3-HHA	128	192	16000		7.50/20	8.25/20	Own T-316	6-3⅞x4¼	236	6.6	193	109-3800	NP-88570	4	Eat 1350	SFd	H	5.83-6.81
B-3-HHM	107	161	16250		7.50/20	8.25/20	Own T-328	6-3⅞x4¼	236	6.6	186	105-3600	NP-88850	4	Own T-328	HyF	H	6.28-6.6
B-3-HHMA	161	161	16250		7.50/20	8.25/20	Own T-328	6-3⅞x4¼	236	6.6	186	105-3600	NP-88850	4	Eat 1350	SFd	H	5.83-6.81
B-3-JL	128	212	17000		6.50/20	9.00/20	Own T-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Own T-318	HyF	H	6.28-7.16
B-3-JAL	128	212	17000		6.50/20	9.00/20	Own T-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Eat 1350	SFd	H	5.83-6.81
B-3-J	128	212	17000		6.50/20	9.00/20	Own T-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Own T-318	HyF	H	6.28-7.16
B-3-JA	128	212	17000		6.50/20	9.00/20	Own T-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Eat 1350	SFd	H	5.83-6.81
B-3-JML	161	161	17250		6.50/20	9.00/20	Own T-330	6-3⅞x4¼	250	6.6	200	109-3800	NP-89430	5	Own T-330	HyF	H	6.28-7.16
B-3-JMAL	107	107	17250		6.50/20	9.00/20	Own T-330	6-3⅞x4¼	250	6.6	200	109-3800	NP-89430	5	Eat 1350	SFd	H	5.83-6.81
B-3-JM	161	161	17250		6.50/20	9.00/20	Own T-330	6-3⅞x4¼	250	6.6	200	109-3800	NP-89430	5	Own T-330	HyF	H	6.28-7.16
B-3-JMA	107	107	17250		6.50/20	9.00/20	Own T-330	6-3⅞x4¼	250	6.6	200	109-3800	NP-89430	5	Eat 1350	SFd	H	5.83-6.81
B-3-KAL	128	170	18000		8.25/20	9.00/20	Own TX-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Eat 1650	SFd	H	6.14-9.04
B-3-KA	128	170	18000		8.25/20	9.00/20	Own TX-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Eat 1650	SFd	H	6.14-9.04
B-3-KMAL	107	161	18250		8.25/20	9.00/20	Own TX-330	6-3⅞x4½	250	6.6	200	109-3800	NP-89430	5	Eat 1650	SFd	H	6.14-9.04
B-3-KMA	107	161	18250		8.25/20	9.00/20	Own TX-330	6-3⅞x4½	250	6.6	200	109-3800	NP-89430	5	Eat 1650	SFd	H	6.14-9.04
B-3-R	172	172	19000		7.50/20	9.00/20	Own T-320	6-3⅝x4½	306	6.4	253	137-3000	NP-88220	5	Tim H-100	HyF	H	6.8 -7.2
B-3-RA	130	172	19000		7.50/20	9.00/20	Own T-320	6-3⅝x4½	306	6.4	253	137-3000	NP-88220	5	Tim H-300	SFd	H	6.16-8.19
B-3-T	172	190	22000		7.50/20	10.00/20	Own T-322	6-3⅝x5	331	6.4	280	145-3000	NP-88450	5	Tim L-100	HyF	H	6.8 -7.2
B-3-TA	130	190	22000		7.50/20	10.00/20	Own T-322	6-3⅝x5	331	6.4	280	145-3000	NP-88450	5	Tim L-300	SFd	H	6.36-9.18
B-3-V	172	190	24000		9.00/20†	11.00/20	Own TX-322	6-3⅝x5	331	6.4	280	145-3000	NP-89450	5	Tim Q-100	HyF	H	6.8 -7.6
B-3-VA	130	190	24000		9.00/20†	11.00/20	Own TX-322	6-3⅝x5	331	6.4	280	145-3000	NP-89450	5	Tim Q-300	SFd	H	6.42-9.55
B3YL, Y	172	190	28000		9.00/20†	11.00/20	Own-T-324	6-4x5	377	6.5	330	154-3000	Cla-290-V2	5	Tim Q-100	HyF	H	6.8 -7.4
B3YAL, YA	130	190	28000		9.00/20†	11.00/20	Own T-324	6-4x5	377	6.5	330	154-3000	Cla-290-V2	5	Tim Q-300	SFd	H	6.42-9.38
School Bus. B-3-FS	152	152	12250		6.50/20	7.50/20	Own TS-314	6-3⅞x4¼	236	6.6	192	109-3800	NP-39790	4	Own TS-314	HyF	H	5.62-6.6
School Bus. B-3-HHS	128	152	14550		7.50/20	8.25/20	Own TS-316	6-3⅞x4¼	236	6.6	193	109-3800	NP-88570	4	Own TS-316	HyF	H	6.28-6.6
School Bus. B-3-JS	212	212	17000		7.50/20	8.25/20	Own TS-318	6-3⅞x4½	250	6.6	206	114-3600	NP-89410	5	Own TS-318	HyF	H	6.28-7.16
School Bus. B-3-RS	229	229	19000		8.25/20	9.00/20	Own TS-320	6-3⅝x4½	306	6.4	245	122-3200	NP-88220	5	Tim H100	HyF	H	6.8 -7.2
Duplex																		
T	136	220	20000	9800	8.25/20D	9.00/20	Her JXD	6-4x4½	320	6.2	240	113-3000	Fu 5B330	5	Tim H100	B	H	** -7.20
TH-404	136	220	20000	9900	8.25/20D	9.00/20	Her WXLC3	6-4½x4⅝	404	5.8	312	139-2600	Fu 5A430	5	Tim H-300	DF	H	6.13-8.15
R	136	220	28000	8820	9.00/20D	10.00/20	Her WXLC-3	6-4½x4⅝	404	5.8	312	139-2600	Fu 5A43	5	Tim Q300	DF	R	6.53-8.53
SH-501	172	208	28000	9500	10.00/20	11.00/20	Her RXB	6-4½x5¼	501	5.4	360	137-2400	Fu 5A620		Tim Q200	2F	R	** -7.77
JHA	148	220	32000	9800	10.00/20D	11.00/20	Her RXB	6-4½x5¼	501	5.4	360	137-2400	Fu 5A620	5	Tim S-200	2F	R	** -9.83
JH-558	148	220	32000	9800	10.00/20D	11.00/20	Her RXLD	6-4⅝x5¼	558	5.3	430	154-2400	Fu 5C650	5	Tim S-300	DF	R	6.41-8.37
KH	148	220	34000	10500	11.00/20D	11.00/20	Her RXC	6-4⅝x5¼	529	5.4	395	132-2300	Fu 5A620	5	Tim U-200	2F	R	** -9.83
LH	148	220	37000	11300	11.00/20D	11.00/20	Jer RXLD	6-4⅝x5¼	558	5.4	430	154-2400	Fu 5C650	5	Tim U-200	2F	R	** -9.83
Federal																		
1501T	136	196	12000	^4850	6.50/20S	7.50/20S	Herc QXLDF	6-3⅞x4¼	236	6.6	190	90-3200	WG T9	4	Tim 53847DPH	BF	H	5.66
1601T	136	250	16000	^5370	7.00/20D	8.25/20	Her QXLDF	6-3⅞x4¼	236	6.6	190	90-3200	WG T9	4	Tim 53547DPH	BF	H	** -5.66
1602T	136	250	16000	^5545	7.00/20D	8.25/20	Her QXLDF	6-3⅞x4¼	236	6.6	190	90-3200	WG T9	4	Tim E300DPH	dF	H	6.13-8.10
1801T	136	250	17500	^5790	8.25/20D	9.00/20	Her JXBF	6-3⅝x4¼	263	6.5	192	98-3200	WG T9+	4	Tim E100DPH	SF	:H	** -8.20
1802T	136	250	17500	^5890	8.25/20D	9.00/20	Her JXBF	6-3⅝x4¼	263	6.5	192	98-3200	WG T9+	4	Tim E300DPH	dF	:H	6.13-8.10
2501T	136	232	19000	^6025	8.25/20D	9.00/20	Her JXCF	6-3¾x4¼	282	6.5	212	103-3200	WG T97+	4	Tim H100DPH	SF	R	** -8.80
2502T	136	250	19000	^6105	8.25/20D	9.00/20	Her JXCF	6-3¾x4¼	282	6.5	212	103-3200	WG T97+	4	Tim H300DPH	dF	R	6.13-8.15
2901T	136	250	21500	^6535	9.00/20D	10.00/20	Her JXDF	6-4x4¼	320	6.5	250	115-3100	Cla 205V‡‡	5	Tim L100DPH	SF	R	** -8.83
2902T	136	250	21500	^6695	9.00/20D	10.00/20	Her JXDF	6-4x4¼	320	6.5	250	115-3100	Cla 205V‡‡	5	Tim L300DPH	dF	R	6.32-8.22
2904T	136	250	23500	^7260	9.00/20D	10.00/20	Her JXDF	6-4x4¼	320	6.5	250	115-3100	Cla 205V‡‡	15	Tim Q-100	SF	R	** -8.83
3001T	136	250	22000	^6875	9.00/20D	10.00/20	Herc JXLDF	6-4x4½	339	6.5	272	131-3200	Cla 206V‡‡	5	Tim L100DPH	SF	R	** -8.83
3002T	136	250	22000	^6735	9.00/20D	10.00/20	Herc JXLDF	6-4x4½	339	6.5	272	131-3200	Cla 205V‡‡	5	Tim L300DPH	dF	R	6.32-8.22
3004T	136	250	24000	^7300	9.00/20D	10.00/20	Herc JXLDF	6-4x4½	339	6.5	272	131-3200	Cla 205V‡‡	15	Tim Q-100	SF	R	** -8.83
3401T	136	250	23000	^7210	9.00/20D	10.00/20	Con T6371F	6-4½x4⅝	371	6.4	297	144-3000	Cla 290V‡‡	5	Tim L100DPH	SF	R	** -8.83
3402T	136	250	23000	^7370	9.00/20D	10.00/20	Con T6371F	6-4½x4⅝	371	6.4	297	144-3000	Cla 290V‡‡	5	Tim L300DPH	dF	R	6.32-8.22
45M-45MA	143	203	27000	8005	10.00/20D	10.00/24	Con T6427F*	6-4¼x4⅞	427	6.4	348	166-3000	Cla 290V	5	Tim Q100P	SF	R	** -8.83
45M2	143	203	27000	8380	10.00/20D	10.00/24	Con T6427F*	6-4¼x4⅞	427	6.4	348	166-3000	Cla 290V	5	Tim Q300P	dF	R	6.53-8.53
65M2-65M	143	203	30000	8635	11.00/22D	11.00/24	Con T6427F*	6-4¼x4⅞	427	6.4	348	166-3000	Cla 290V	5	Tim S300P‡	HyF	R	6.53-8.53
55MA	155	203	30000	8765	11.00/22D	11.00/24	Con T6427F*	6-4¼x4⅞	427	6.4	348	166-3000	Cla 290V‡	15	Tim S200P	2F	R	** -7.08
60MA	155	203	32000	9600	11.00/22D	11.00/24	Con U6501F*	6-4½x5¼	501	6.4	414	178-2800	Fu 5A65‡	15	Tim S200P	2F	R	** -7.08
60M2-60M	143	203	32000	9370	11.00/22D	11.00/24	Con U6501F*	6-4½x5¼	501	6.4	414	178-2800	Fu 5A65‡	5	Tim S300P‡	HyF	R	6.53-8.53
65M2-65M	141	201	33000	9995	11.00/22D	11.00/24	Con R6602F*	6-4⅞x5½	602	6.4	466	205-3000	Fu 5A65‡	5	Tim S300P‡	HyF	R	6.53-8.53
65MA	153	201	33000	10225	11.00/22D	11.00/24	Con R6602F*	6-4⅞x5½	602	6.4	466	205-3000	Fu 5A65‡	15	Tim S200P	HyF	R	** -7.08
3404T	136	250	25000	*7935	9.00/20D	10.00/20	Con T6371F	6-4½x4⅝	371	6.5	297	144-3000	Cla 290V‡‡	5	Tim Q100DPH	SF	R	** -8.83
Ford F-1																		
Cowl 1HC-84	114	114	4700	2226	6.00/16-4	6.50/16-6S	Own 7HC	6-3.3x4.4	228	6.8	160	95-3300	Own 1C	3	Own 1C	H½	H	3.92-4.27

For References and Abbreviations see page 149

For Directory of the Manufacturers listed above, see page 338

1952 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEEL-BASE				TIRE SIZES		ENGINE DETAILS						TRANSMISSION		REAR AXLE			
					D-dual rear S-single rear													
	Minimum Standard	Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	Standard Front and Rear	Maximum Authorized Tire Size (Duals unless noted)	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Make and Model	Forward Speeds	Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Ford, Cont'd																		
Cowl 1RC-84	114	114	4700	2266	6.00/16-4	6.50/16-6S	Own 8RC	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 1C	3	Own 1C	H 1/2	H	3.92-4.27
F-2																		
Cowl 1HD-84	122	122	5700	2616	6.50/16-6	7.50/16-6S	Own 7HD	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 1D	SF	H	** -4.86
Cowl 1RD-84	122	122	5700	2656	6.50/16-6	7.50/16-6S	Own 8RD	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 1D	SF	H	** -4.86
F-3																		
Cowl 1HY-84	122	122	6800	2849	7.00/17-8S	7.50/17-8S	Own 7HY	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 1D	SF	H	** -4.86
Cowl 1RY-84	122	122	6800	2889	7.00/17-8S	7.50/17-8S	Own 8RY	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 1D	SF	H	** -4.86
F-3 Parcel Dlvy.																		
w/o 1HJ	104	104	7800	3030	7.00/16-8S	7.50/17-8S	Own 8HJ	6-3.3x4.4	226	6.8	180	95-3300	Own 8J	3	Own 8J	SF	H	** -4.86
w/o 1H2J	122	122	7800	3100	7.00/16-8S	7.50/17-8S	Own 8HJ	6-3.3x4.4	226	6.8	180	95-3300	Own 8J	3	Own 8J	SF	H	** -4.86
F-4																		
Cowl 1HTL-84	134	134	10000	3457	7.00/20-8S	7.00/18-8	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.63
Cowl 1RTL-84	134	134	10000	3497	7.00/20-8S	7.00/18-8	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.63
F-5																		
Cowl 1HT-84	134	134	14000	3646	6.50/20-8	7.50/20-8	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cowl 1RT-84	134	134	14000	3686	6.50/20-8	7.50/20-8	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cowl 1H8T-84	158	158	14000	3796	6.50/20-8	7.50/20-8	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cowl 1R8T-84	158	158	14000	3836	6.50/20-8	7.50/20-8	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cowl 1H6T-84	176	176	14000	3926	6.50/20-8	7.50/20-8	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cowl 1R6T-84	176	176	14000	3966	6.50/20-8	7.50/20-8	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
F-5 (c.o.e.)																		
Cab 1HOW-81	110	110	14000	4348	6.50/20-8	7.50/20-8	Own 8HW	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cab 1ROW-81	110	110	14000	4388	6.50/20-8	7.50/20-8	Own 8RW	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cab 1HW-81	134	134	14000	4476	6.50/20-8	7.50/20-8	Own 8HW	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cab 1RW-81	134	134	14000	4516	6.50/20-8	7.50/20-8	Own 8RW	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cab 1H8W-81	158	158	14000	4546	6.50/20-8	7.50/20-8	Own 8HW	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Cab 1R8W-81	158	158	14000	4586	6.50/20-8	7.50/20-8	Own 8RW	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
F-5 School Bus																		
Bus Cl. 1H8T-84	158	158	12000	3758	6.50/20-6	7.50/20	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Bus Cl. 1R8T-84	158	158	12000	3798	6.50/20-6	7.50/20	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
F-6 School Bus																		
Bus Cl. 1H4T-84	194	194	15000	4260	7.50/20-8	8.25/20-10	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8T	SF	H	5.14-6.67
Bus Cl. 1R4T-84	194	194	15000	4300	7.50/20-8	8.25/20-10	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8T	SF	H	5.14-6.67
F-6																		
Cowl 1HTH-84	134	134	16000	3980	7.50/20-8	8.25/20-10	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1RTH-84	134	134	16000	4020	7.50/20-8	8.25/20-10	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1MTH-84	134	134	16000	4165	7.50/20-8	8.25/20-10	Own 8MTH	6-3.5x4.4	254	6.8	212	110-3400	Own 8MTH	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1H8TH-84	158	158	16000	4050	7.50/20-8	8.25/20-10	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1R8TH-84	158	158	16000	4090	7.50/20-8	8.25/20-10	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1M8TH-84	158	158	16000	4235	7.50/20-8	8.25/20-10	Own 8MTH	6-3.5x4.4	254	6.8	212	110-3400	Own 8MTH	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1H6TH-84	176	176	16000	4130	7.50/20-8	8.25/20-10	Own 7HT	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1R6TH-84	176	176	16000	4170	7.50/20-8	8.25/20-10	Own 8RT	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cowl 1M6TH-84	176	176	16000	4315	7.50/20-8	8.25/20-10	Own 8MTH	6-3.5x4.4	254	6.8	212	110-3400	Own 8MTH	4	Own 8TH	Hy	H	6.2 -7.2
F-6 (c.o.e.)																		
Cab 1HOWH-81	110	110	16000	4549	7.50/20-8	8.25/20-10	Own 8HW	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1ROWH-81	110	110	16000	4589	7.50/20-8	8.25/20-10	Own 8RW	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1MOWH-81	110	110	16000	4574	7.50/20-8	8.25/20-10	Own 8MWH	6-3.5x4.4	254	6.8	210	106-3400	Own 8MTH	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1HWH-81	134	134	16000	4679	7.50/20-8	8.25/20-10	Own 8HW	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1RWH-81	134	134	16000	4719	7.50/20-8	8.25/20-10	Own 8RW	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1MWH-81	134	134	16000	4704	7.50/20-8	8.25/20-10	Own 8MWH	6-3.5x4.4	254	6.8	210	106-3400	Own 8MTH	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1H8WH-81	158	158	16000	4749	7.50/20-8	8.25/20-10	Own 8HW	6-3.3x4.4	226	6.8	180	95-3300	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1R8WH-81	158	158	16000	4789	7.50/20-8	8.25/20-10	Own 8RW	8-3 1/16 x3 1/4	239	6.8	180	100-3800	Own 41T	4	Own 8TH	Hy	H	6.2 -7.2
Cab 1M8WH-81	158	158	16000	4774	7.50/20-8	8.25/20-10	Own 8MWH	6-3.5x4.4	254	6.8	210	106-3400	Own 8MTH	4	Own 8TH	Hy	H	6.2 -7.2
F-7																		
Cowl 1EQ-84	135	135	19000	5478	8.25/20-10	9.00/20-10	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQ	5	Own 8Q	Hy	H	** -6.8
Cowl 1E7Q-84	147	147	19000	5528	8.25/20-10	9.00/20-10	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQ	5	Own 8Q	Hy	H	** -6.8
Cowl 1E9Q-84	159	159	19000	5648	8.25/20-10	9.00/20-10	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQ	5	Own 8Q	Hy	H	** -6.8
Cowl 1E8Q-84	178	178	19000	5748	8.25/20-10	9.00/20-10	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQ	5	Own 8Q	Hy	H	** -6.8
Cowl 1E5Q-84	195	195	19000	5808	8.25/20-10	9.00/20-10	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQ	5	Own 8Q	Hy	H	** -6.8
F-8																		
Cowl 1EQH-84	135	135	22000	5934	9.00/20-10	10.00/20-12	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQH	5	Own 8QH	SF	H	** -7.17
Cowl 1E7QH-84	147	147	22000	5984	9.00/20-10	10.00/20-12	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQH	5	Own 8QH	SF	H	** -7.17
Cowl 1E9QH-84	159	159	22000	6224	9.00/20-10	10.00/20-12	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQH	5	Own 8QH	SF	H	** -7.17
Cowl 1E8QH-84	178	178	22000	6124	9.00/20-10	10.00/20-12	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQH	5	Own 8QH	SF	H	** -7.17
Cowl 1E5QH-84	195	195	22000	6284	9.00/20-10	10.00/20-12	Own 8EQ	8-3 1/16 x4 1/8	337	6.4	255	145-3600	Own 7EQH	5	Own 8QH	SF	H	** -7.17
Kenworth (D) 521	165	255	28000	12000	10.00/20	11.00/22	Cum HB6	6-4 7/16 x6	672	17.0	500	150-1600	BL 8241	4	Tim U200P	H2F	H	5.91-9.76
565	165	255	28000	9600	10.00/20	11.00/22	Wau 140GZ	6-4 5/8 x5 1/2	554	6.4	450	188-2600	Fu 5C650	5	Tim R100P	HF	H	5.29-7.60
Linn A-15	120	...	9000	6000	7.50/20S	8.25/20S	Her JXE3	6-3 1/2 x4 1/2	245	6.5	184	91-3200	WGT9	4	Own 601	N	N	None
A-25	156	...	11200	6200	7.50/20S	8.25/20	Her JXE3	6-3 1/2 x4 1/2	245	6.5	184	91-3200	WGT9	4	Own 601	N	N	None
A-35	169	...	14700	7900	7.50/20D	8.25/20	Her JXC	6-3 3/4 x4 1/2	282	6.7	207	103-3200	WGT9	4	Own 602T	N	N	None
A-45	205	...	16900	8100	7.50/20D	8.25/20	Her JXC	6-3 3/4 x4 1/2	282	6.7	207	103-3200	WGT9	4	Own 602T	N	N	None
Mar. Her. DVL-4	90	118	6750	...	7.50/18S	8.25/18S	Willys MB	4-3 1/16 x4 5/8	134	6.4	105	60-4000	Own	3	(Front Drive)	...	...	7.10
Peterbilt (D) 280	175	Opt	27000	12500	10.00/20D	11.00/22	Cum HB600	6-4 7/16 x6	672	17.0	500	150-1800	Spi 8041	12	U-200AP	2F	R	5.91-8.51
280 (c.o.e.)	111	Opt	27000	...	10.00/20	11.00/22	Cum HB600	6-4 7/16 x6	672	17.0	500	150-1800	Spi 8041	12	U-200AP	2F	R	5.91-8.51
Reo F-20A	125	125	16000	4785	7.50/20	8.25/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-20T	125	125	16000	5215	8.25/20	8.25/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E300	Hfd	H	6.13-8.10
F-20B	150	150	16000	4925	7.50/20	8.25/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-20C	170	170	16000	5060	7.50/20	8.25/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-20L	185	185	16000	5185	7.50/20	8.25/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-21A	130	130	18000	5110	8.25/20	9.00/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-21T	130	130	18000	5535	8.25/20	9.00/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E300	HFd	H	6.13-8.10
F-21B	150	150	18000	5325	8.25/20	9.00/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-21C	170	170	18000	5460	8.25/20	9.00/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-21L	185	185	18000	5555	8.25/20	9.00/20	Own 255	6-3 1/2 x4 1/2	255	6.7	189	107-3400	WG T98	4	Tim E100+	HF	H	5.28-6.8
F-22A	130	130	20000	5840	9.00/20	10.00/20	Own 292Δ	6-3 5/8 x4 1/2	292	6.5	224	124-3300	Cla 205V	5	Tim H100^	HF	H	6.16-6.8
F-22T	130	130	20000	6415	9.00/20	10.00/20	Own 292Δ	6-3 5/8 x4 1/2	292	6.5	224	124-3300	Cla 205V	5	Tim H300^	Hfd	H	6.67-6.85
F-22B	150	150	20000	6005	9.00/20	10.00/20	Own 292Δ	6-3 5/8 x4 1/2	292	6.5	224	124-3300	Cla 205V	5	Tim H100^	HF	H	6.16-6.8
F-22C	170	170	20000	6140	9.00/20	10.00/20	Own 292Δ	6-3 5/8 x4 1/2	292	6.5	224	124-3300	Cla 205V	5	Tim H100^	HF	H	6.16-6.8
F-22L	185	185	20000	6275	9.00/20	10.00/20	Own 292Δ	6-3 5/8 x4 1/2	292	6.5	224	124-3300	Cla 205V	5	Tim H100^	HF	H	6.16-6.8

For References and Abbreviations see page 149

For Directory of the Manufacturers listed above, see page 338

1952 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear		ENGINE DETAILS						TRANSMISSION		REAR AXLE			
	Minimum Standard	Maximum Standard			Standard Front and Rear	Maximum Authorized Tire Size (Duals unless noted)	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Make and Model	Forward Speeds	Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Foo. Cont'd																		
F-22RA	130	130	22000	6420	10.00/20	10.00/22	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim L100^	HF	H	6.16-7.4
F-22RT	130	130	22000	6980	10.00/20	10.00/22	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim L300^	HFd	H	6.38-8.28
F-22RB	150	150	22000	6565	10.00/20	10.00/22	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim L100^	HF	H	6.16-7.4
F-22RC	170	170	22000	6680	10.00/20	10.00/22	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim L100^	HF	H	6.16-7.4
F-22RL	185	185	22000	6805	10.00/20	10.00/22	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim L100^	HF	H	6.16-7.4
F-22SA	130	130	24000	7305	10.00/20	11.00/20	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim Q100^	HF	H	6.16-6.83
F-22ST	130	130	24000	7765	10.00/20	11.00/20	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim Q300^	HFd	H	6.42-8.38
F-22SB	150	150	24000	7485	10.00/20	11.00/20	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim Q100^	HF	H	6.16-6.83
F-22SC	170	170	24000	7670	10.00/20	11.00/20	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim Q100^	HF	H	6.16-6.83
F-22SL	185	185	24000	7825	10.00/20	11.00/20	Own 331	6-4½x4½	331	6.4	264	140-3200	Cla 205V	5	Tim Q100^	HF	H	6.16-6.83
F-23A	130	130	26000	7695	10.00/20	11.00/22	Con T6427	6-4¼x4½	427	6.4	348	151-2800	Cla 290V	5	Tim Q100^	HF	H	6.16-6.83
F-23T	130	130	26000	8155	10.00/20	11.00/22	Con T6427	6-4¼x4½	427	6.4	348	151-2800	Cla 290V	5	Tim Q300^	HF	H	6.42-8.38
F-23B	150	150	26000	7865	10.00/20	11.00/22	Con T6427	6-4¼x4½	427	6.4	348	151-2800	Cla 290V	5	Tim Q100^	HF	H	6.16-6.83
F-23C	170	170	26000	8035	10.00/20	11.00/22	Con T6427	6-4¼x4½	427	6.4	348	151-2800	Cla 290V	5	Tim Q100^	HF	H	6.16-6.83
F-23L	185	185	26000	8195	10.00/20	11.00/22	Con T6427	6-4¼x4½	427	6.4	348	151-2800	Cla 290V	5	Tim Q100^	HF	H	6.16-6.83
Sterling																		
**(T) TB1301T	143	153	28000	*10375	10.00/20	11.00/22	Wau 140GKB**	6-4½x5½	525	6.4	425	172-2700	Fu 5A620	5	Tim R100P	FHy	R	3.70-7.40
**(T) TB1501T	143	153	30000	*11100	11.00/20	12.00/24†	Wau 140GZB**	6-4½x5½	555	6.4	450	183-2600	Fu 5C650	5	Tim U200P	2F	R	5.91-9.76
(D)(T) TA1501TD	173	181	30000	*13125	10.00/20	10.00/22	Cum NH6800	6-5½x6	743	15.0	537	200-2100	Fu 4A86-3B65	12	Tim S200P	2F	R	5.91-9.76
(D)(T) TA1511TD	173	181	30000	*13250	11.00/20	11.00/22	Cum NH6800	6-5½x6	743	15.0	537	200-2100	Fu 4A86-3B65	12	Tim S200P	2F	R	5.91-9.76
(D) TA1601D	173	231	32000	*13650	10.00/20	10.00/22	Cum NH6800	6-5½x6	743	15.0	537	200-2100	Fu 4A86-3A92	12	Tim U200P	2F	R	5.91-9.76
(D) TA1611D	173	231	32000	*13775	11.00/20	11.00/22	Cum NH6800	6-5½x6	743	15.0	537	200-2100	Fu 4A86-3A92	12	Tim U200P	2F	R	5.91-9.76
HA1101	148	215	22000	^ 8825	9.00/20	10.00/20	Wau 6MZA	6-4¼x4½	404	5.6	290	130-3000	Fu 5A43	5	Tim L100D/PH	FHy	R	4.11-7.20
HA1401	148	215	28000	*10050	10.00/20	12.00/20‡	Wau 6MZA	6-4¼x4½	404	5.6	290	130-3000	Fu 5A43	5	Tim R200P	2F	R	5.91-10.2
HA1601	148	215	32000	*10825	10.00/20	11.00/24	Wau 6SRKR	6-4½x5½	517	5.5	389	125-2250	Fu 5A62	5	Tim S200P	2F	R	5.91-9.76
HA1701	148	215	34000	*11225	11.00/20	12.00/24†	Wau 6SRKR	6-4½x5½	517	5.5	389	125-2250	Fu 5A62	5	Tim U200P	2F	R	5.91-9.76
HB2001	1 3	211	40000	*12800	11.00/24	12.00/24	Wau 140GKB	6-4½x5½	525	6.4	425	172-2700	Fu 5A62-3A65	15	Tim 79 21	2F	R	7.69-11.3
(D) HB2001D	153	211	40000	*14150	11.00/24	12.00/24	Cum HBD600	6-4¾x6	672	17.	495	150-1800	Fu 4A86-3A92	12	Tim 79721	2F	R	7.69-11.3
HA1502	148	215	30000	*10200	10.00/20	12.00/20‡	Wau 6MZA	6-4¼x4½	404	5.6	290	130-3000	Fu 5A43▲	15	Own 1435W	CD	R	6.70-10.8
HA1802	148	215	36000	*11800	11.00/22	12.00/24	Wau 6SRKR	6-4½x5½	517	5.5	389	125-2250	Fu 5A62▲	15	Own 1445W	CD	R	6.70-10.8
HA1803	148	215	36000	*12100	11.00/22	11.00/24	Wau 6SRKR	6-4½x5½	517	5.5	389	125-2250	Fu 5A62▲	15	Own 139W	CD	R	6.70-10.8
HA1813	148	215	36000	*12450	11.00/22	12.00/24	Wau 6SRKR	6-4½x5½	517	5.5	389	125-2250	Fu 5A62▲	15	Own 155W	CD	R	6.70-10.8
HB2002	143	211	40000	*12850	11.00/24	12.00/24	Wau 140GKB	6-4½x5½	525	6.4	425	172-2700	Fu 5A62▲	15	Own 160W	CD	R	5.56-9.26
(D) HB2002D	153	211	40000	*14100	11.00/24	12.00/24	Cum HBD600	6-4¾x6	672	17.	495	150-1800	Fu 4A86††	12	Own 160W	CD	R	7.31-12.4
HB2003	143	211	40000	*13150	11.00/24	12.00/24	Wau 140GKB	6-4½x5½	525	6.4	425	172-2700	Fu 5A62▲	15	Own 155W	CD	R	5.56-9.26
(D) HB2003D	153	211	40000	*14400	11.00/24	12.00/24	Cum HBD600	6-4¾x6	672	17.	495	150-1800	Fu 4A86††	12	Own 155W	CD	R	7.31-12.4
HB2013	143	211	40000	*13400	11.00/24	12.00/24	Wau 140GKB	6-4½x5½	525	6.4	425	172-2700	Fu 5A62▲	15	Own 155W	CD	R	5.56-9.26
(D) HB2013D	143	211	40000	*14650	11.00/24	12.00/24	Cum HBD600	6-4¾x6	672	17.	495	150-1800	Fu 4A86††	12	Own 155W	CD	R	7.31-12.4
(D) HB2503D	153	211	50000	*15850	12.00/24†	14.00/24*	Cum HBD600	6-4¾x6	672	17.	495	150-1800	Fu 4A86††	12	Own 177W	CD	R	7.31-12.4
Studebaker 2R5	112	112	4600	2125	6.00/16S	6.50/16S	Own 1R	6-3x4	170	7.0	138	85-4000	Own 673519	3	Own 680233	Hy	H	4.89-4.89
2R6	112	112	4600	2365	6.00/16S	6.50/16S	Own 6R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 679807	3	Own 680233	Hy	H	4.89-4.89
2R10	122	122	6100	2400	6.50/16S	7.50/16S	Own 1R	6-3x4	170	7.0	138	85-4000	Own 673519	3	Own 679819	SF	H	5.57-5.89
2R11	122	122	8100	2640	6.50/16S	7.50/16S	Own 6R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 679818	3	Own 680438	SF	H	5.83-6.66
2R14-21	121	121	7800	3245	7.00/17S	7.00/20	Own 6R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 680438	4	Own 680404	SF	H	5.83-6.66
2R15-21	121	121	7800	3005	7.00/17S	7.00/20	Own 2R	6-3x4	170	7.0	138	85-4000	Own 680437	4	Own680404	SF	H	5.83-6.66
2R15-31	131	131	10000	3065	7.00/17S	7.00/20	Own 2R	6-3x6	170	7.0	138	85-4000	Own 680437	4	Own 680404	SF	H	5.83-6.66
2R16A	131	195	14000	3695	6.50/20D	8.25/20	Own 4R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 680438	4	Own 680399▲	SF	H	6.66-5.83
2R16B	131	195	15000	3695	6.50/20D	8.25/20	Own 4R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 680438	4	Own 680399▲	SF	H	6.66-5.83
2R17A	131	195	16000	4180	7.50/20D	9.00/20	Own 4R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 680439	4	Own 680405††	Hy	H	6.60-6.20
2R17B	131	195	17000	4180	7.50/20D	9.00/20	Own 4R	6-3⅛x4⅝	245	7.0	205	102-3200	Own 680439	4	Own 680405††	Hy	H	6.60-6.20
Ward La Fr. D-1	149	220	25000	^ 9500	10.00/20	11.00/20	Con T6427	6-4¼x4½	427	5.1	340	152-2600	Ful 5A430	5	Tim Q-100	B	R	**-8.83
D-1C	149	220	29000	^ 9500	11.00/20	11.00/22	Con T6427	6-4¼x4½	427	5.1	340	152-2800	Ful 5A430	5	Tim S-200	S2	R	**-7.08
D-2K	149	220	29000	*10000	11.00/20	11.00/22	Wau 140GK	6-4½x5½	525	6.4	425	168-2400	Ful 5A620	5	Tim S-200	S2	R	**-7.84
D-2Z	149	220	29000	*10000	11.00/20	11.00/20	Wau 140GZ	6-4½x5½	554	6.4	456	184-2400	Ful 5C650	5	Tim S-200	S2	R	**-7.84
D-3	149	220	29000	*10000	11.00/20	11.00/22	Con R6572	6-4¼x5½	572	5.9	440	189-2800	Ful 5C650	5	Tim S-200	S2	R	**-7.84
D-3S	149	220	29000	*10000	11.00/20	11.00/22	Con R6602	6-4⅞x5½	602	5.9	463	198-2800	Ful 5C650	5	Tim S-200	S2	R	**-7.84
(D) D-5	149	220	35000	*12500	11.00/22	11.00/22	Cum HB600	6-4¾x6	672	17	500	150-1800	Ful 5C650	5	Tim U-200	S2	R	**-8.42
White WC16	136	226	18000	4980	6.50/20	9.00/20		6-3⅝x4½	296		230	110-3100		4		HF†	H	5.29-7.20
WC20	136	226	23000	6455	7.50/20	10.00/20		6-4x4½	340		270	120-3000		5		BF†	H	5.11-7.17
WC22	136	226	26500	7005	8.25/20	11.00/20		6-3⅞x5½	362		285	125-3000		5		BF†	R	4.88-7.17
WC26	136	226	30000	7405	9.00/20	11.00/22		6-4x5½	386		315	135-3000		5		BF†	R	4.88-7.17
WC28	134	224	32000	9080	9.00/20	11.00/24		6-4½x5	481		350	170-3000		5		BF†	R	4.88-7.17
WC32	148	224	37500	10160	9.00/20	11.00/24		6-4 x5	504		405	184-3000		5			R	6.67-8.50
(c.o.e.) 3014	99	165	16000	^ 4880	6.50/20	8.25/20		6-3½x4½	245		185	100-		4		HyF	H	6.20-6.80
(c.o.e.) 3015	99	147	19000		7.00/20	9.00/20		6-3½x4½	245		185	100-		4			H	5.29-7.20
(c.o.e.) 3016	85	181	18500	^ 6325	6.50/20	9.00/20		6-3⅝x4½	296		230	110-3100		4		HyF	H	5.29-7.20
(c.o.e.) 3020	85	181	24000	^ 7190	7.50/20	10.00/20		6-4x4½	340		270	120-3000		5		HF†	H	4.88-7.17
(c.o.e.) 3022	91	181	28000	^ 8175	8.25/20	11.00/22		6-3⅞x5½	362		285	125-3000		5		BF†	R	4.88-7.17
(c.o.e.) 3026	91	181	32000	^ 8585	9.00/20	12.00/20		6-4x5½	386		315	135-3000		5		BF†	R	4.88-7.17
(T) WC22T	136	160	*50000	7065	8.25/20	11.00/20		6-4x5½	386		315	135-3000		5		BF†	R	4.88-7.17
(T) WC26T	136	160	*55000	7465	9.00/20	11.00/22		6-4x5½	386		315	135-3000		5		BF†	R	4.88-7.17
(T) WC28T	134	158	*65000	9175	9.00/20	11.00/24		6-4½x5	504		405	184-3000		5		BF†	R	4.88-7.17
(T) WC16PLT	136	160	*40000	6020	7.00/20	10.00/20		6-4x4½	340		270	120-3000		5		HF†	H	4.11-7.40
(T) WC16T	136	160	*30000	5125	6.50/20	9.00/20		6-3⅝x4½	318		250	114-3000		5		HF†	H	5.29-7.20
(T) WC20T	136	160	*45000	8520	7.50/20	10.00/20		6-3⅞x5½	362		285	125-3000		5		BF†	R	5.11-7.17
(T) WC22PLT	136	160	*50000	6725	8.25/20	11.00/20		6- x5½	386		315	135-3000		5		BF†	H	4.75-7.14
(T)(c.o.e.) 3016T	85	109	*33000	6375	6.50/20	9.00/20		6-3⅝x4½	318		250	114-3000		5		HyF	H	5.29-7.20
(T)(c.o.e.) 3020T	85	109	*48500	7240	7.50/20	10.00/20		6-4x4½	340		270	120-3000		5		HF†	H	5.11-7.17
(T)(c.o.e.) 3022PLT	91	109	*54000	7750	8.25/20	11.00/22		6-4x5½	386		315	135-3000		5		BF†	H	4.75-7.14
(T)(c.o.e.) 3022T	91	109	*54000	8215	8.25/20	11.00/22		6-4x5½	386		315	135-3000		5		BF†	R	4.88-7.17
(D) WC25D	134	224	27000		9.00/20	11.00/24		6-5½x6	743		540	175-1800		10			R	** -8.57
(D) WC28D	134	224	29000		9.00/20	11.00/24		6-5½x6	743		535	200-1800		10			R	** -8.57
(D) WC32D	134	224	34000		9.00/20	11.00/24		6-5½x6	743		535	200-1800		10			R	** -8.57
(T)(D) WC26TD	134	158	*55000	11365	9.00/20	11.00/24		6-5½x6	743		540	175-1800		10			R	** -8.57
(T)(D) WC28TD	134	158	*65000	11365	9.00/20	11.00/24		6-5½x6	743		535	200-1800		10			R	** -8.57
White-Freightliner (c.o.e.) WF42	114	120		*11300	10.00/22		††	6-5½x6	743	13.	575	200-2100	Fu 4A86	8	Eat 22501	SFd	H	4.33-6.67
Willys Sd. Dv. 472	104	104	40000	*2 :0	3.50/15		Own 473	4-3½x4⅝	134	7.4	114	72-4000	WG T96	3	Spi 23-1	Hy½	H	** -4.88

For References and Abbreviations see page 149

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1952 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Four-Wheel-Drive																		
Autocar C-8044	164	164	30000	13800	11.00/20	12.00/20	Own 501	6-4½x5½	501	6.0	400	165-2700	Own TF-4	4	Own TK	2F	H	** -6.5
DC-1044	157	157	38000	16300	11.00/24	12.00/24	Cum NHB600	6-5½x6	743	15.5	537	200-2100	Spi 8241	4	Own G	2F	H	** -7.37
Coleman G-55	139	150	30000	11750	11.00/20	12.00/20	Buda LO-525	6-4½x5½	525	6.7	400	150-2200	Fu 5A650	5	OW-C375FXa	2		9.66
Corbitt G101F20	Opt		20000		9.00 20	9.25/20	Con M6330	6-4x4½	330	6.1	248	104-2800	Cla 205VO	5	Tim H100	HF	H	** -6.8
G301F24	Opt		24000		9.00/20	10.00/20	Con B6371	6-4½x5½	371	6.0	280	100-2600	Fu 5A43	5	Tim R2090	2F	H	** -8.43
G601F31	Opt		32000		10.00/20	11.00/24	Con R6513	6-4½x5½	513	5.9	400	170-2600	Fu 5A620	5	Tim 1357	2F	H	6.65-7.33
(T)(D) D808U32	Opt		32000		10.00/20	11.00/24	Cum HHBB600	6-5½x6	743	17.0	540	175-2000	Fu 5C720	5	Tim 1758	2F	H	** -7.33
Dodge B-3-PW	126	126	8700		7.50/16S	9.00/16S	Own T-137	6-3¼x4½	230	6.7	188	94-3200	NP-88790	4	Own T-137	HyF	H	4.69-5.6
FWD LD	124	164			*5500	6.50/20D 9.00/20	Her CB-QXLD3	6-3⅞x4¼	238	6.7	190	97-3200	WG T9A	8	Tim F30	SF	H	6.67- **
HA	132	168			*7545	8.25/20D 10.00/20	Wau 195GKA	6-4½x4	320	6.2	245	125-3200	Own H	5	Own H	SF	H	6.66-9.01
HAY	132	168			*7945	9.00/20D 10.00/20	Wau 195GKA	6-4½x4	320	6.2	245	125-3200	Own H	5	Own HY	SF	H	6.66-9.01
HR	132	168			*8000	9.00/20 10.00/20	Wau MZA	6-4¼x4¾	404	5.6	291	130-3000	Own H	5	Own H	SF	H	6.66-9.01
HRC	139	Opt			*9500	10.00/20D 11.00/20	Wau 140GKB	6-4½x5½	525	6.4	425	172-2600	Own HC	5	Own HC	SF	H	5.45-5.92
HRY	132	168			*8400	10.00/20D 10.00/20	Wau MZA	6-4¼x4¾	404	5.6	291	130-3000	Own H	5	Own HY	SF	H	6.66-9.01
HG	154	154			*8000	9.00/20D 10.00/20	Wau MZA	6-4¼x4¾	404	5.6	291	130-3000	Own H	5	Own H	SF	H	6.66-9.01
HGY	154	154			*8400	10.00/20D 10.00/20	Wau MZA	6-4¼x4¾	404	5.6	291	130-3000	Own H	5	Own HY	SF	H	6.66-9.01
SU	150	182			*10670	11.00/20D 13.00/20S	Wau SRKR	6-4½x5½	517	5.5	388	125-2400	Own U	5	Own SU	SF	H	6.7 -9.8
SUD	150	182			*11000	11.00/20D 13.00/20S	GMC 4-71	4-4¼x5	284	16.0	400	133-2000	Own U	5	Own SU	SF	H	6.7 -9.8
AU	150	150			*11100	12.00/20S 13.00/20S	Wau 140GZ	6-4½x5½	554	6.4	460	188-2600	Own U	10	Own SU	SF	H	6.7 -9.9
YU	150	182			*11570	11.00/20D 14.00/20S	Wau 140GK	6-4½x5½	525	6.2	425	142-2250	Own S	5	Own YU	SF	H	5.7 -10.8
YUD	150	182			*11890	11.00/20D 14.00/20S	GMC 4-71	4-4¼x5	284	16.0	400	133-2000	Own S	5	Own YU	SF	H	5.7 -10.8
ZU	150	182			*12540	11.00/20D 14.00/20S	Wau 140GZ	6-4½x5½	554	6.4	460	188-2600	Own S	5	Own ZU	SF	H	6.8 -11.4
(D) ZUD	150	182			*13370	11.00/20D 14.00/20S	GMC 6-71	6-4¼x5	426	16.0	600	200-2000	Own S	5	Own ZU	SF	H	6.8 -11.4
M7G	150	180			*15500	12.00/20D 14.00/20S	Wau 145GK	6-5¼x6	779	6.2	580	186-2000	Own M	10	Tim 1756W	2F	H	6.5 -12.0
(D) M7D	150	180			*16100	12.00/20D 14.00/20S	Bu DA844	6-5¼x6½	844	14.2	645	210-1800	Own M	10	Tim 1758W	2F	H	6.5 -12.0
M10G	150	180			*15800	12.00/20D 14.00/20S	Wau 145GK	6-5¼x6	779	6.2	580	186-2000	Own M	10	TW 79721	2F	H	6.7 -9.2
(D) M10D	150	180			*16400	12.00/20D 14.00/20S	Bu DA844	6-5¼x6½	844	14.2	645	210-1800	Own M	10	TW 79721	2F	H	6.7 -9.2
Marmon-Herr																		
(C) R5-4	134	134	15500	*5100	7.50/20D	8.25/20	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	S	H	** -6.67
(C) R6-4	158	158	15500	*5331	7.50/20D	8.25/20	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	S	H	** -6.67
(C) LD7-4	114		5300	*3500	15"	15"	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	S	H	** -4.27
(C) R32-4	122		6800	*4100	7.50/17	7.50/17	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	S	H	** -4.88
(C) R4-4	134		10000	*4900	7.00/20S	7.00/20	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	S	H	** -5.83
(C) R8-A-COE4	110	158	15500	*5360	7.50/20D	8.25/20	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	S	H	** -6.67
(C) V5-4	134	176	17000	*5294	7.50/20D	8.25/20	Ford	6-3⅞x3¾	239	6.4	180	100-3800	Ford	4	Ford	H	H	** -6.80
(C) Q5-4	136		21500	*7100	9.00/20	10.00/20	Ford	6-3⅞x4½	337	6.4	255	145-3600	Ford	5	Ford	H	H	** -6.80
(C) Q6-4	160		21500	*7200	9.00/20	10.00/20	Ford	6-3⅞x4½	337	6.4	255	145-3600	Ford	5	Ford	H	H	** -6.80
(C) Q7-4	196		21500	*7350	9.00/20	10.00/20	Ford	6-3⅞x4½	337	6.4	255	145-3600	Ford	5	Ford	H	H	** -6.80
(C) Q5-L4	148		21500	*7150	9.00/20	10.00/20	Ford	6-3⅞x4½	337	6.4	255	145-3600	Ford	5	Ford	H	H	** -6.80
(C) Q6-L4	179		21500	*7275	9.00/20	10.00/20	Ford	6-3⅞x4½	337	6.4	255	145-3600	Ford	5	Ford	H	H	** -6.80
MH610A	159	193	24000	*9547	10.00/20D	11.00/20	Her WXLC3	6-4½x4¾	404	6.5	312	139-2600	MH610	5	MH610A	HyF	H	** -6.80
MH615A	159	193	26000	*10158	10.00/20D	11.00/20	Her WXLC3	6-4½x4¾	404	6.5	312	139-2600	MH615	5	MH615A	2S	H	** -8.43
MH620A	159	193	28000	*10615	10.00/20D	11.00/20	Her RXLC	6-4⅝x5¼	529	6.0	408	146-2600	MH620	5	MH620A	2S	H	** -8.63
MH625	159	193	30000	*11511	11.00/20D	12.00/20	Her RXLC	6-4⅝x5¼	529	6.0	408	146-2600	MH625	5	MH625	2S	H	** -8.59
MH630	159	193	33000	*11711	11.00/20D	12.00/20	Her RXLDH	6-4⅝x5¼	558	6.0	440	180-2600	MH630	5	MH630	2SF	H	** -8.59
Oshkosh W-212	144	208	21000	*8430	9.00/20D	9.00/20	Her JXLD	6-4x4½	338	....	272	130-3000	Fu 5A43	5	Own W212	HF	H	** -7.5
W1700	150	208	28000	*11000	11.00/20D	12.00/20S	Her RXC	6-4⅝x5¼	529	....	410	145-2200	Fu 5A620	5	Own W1700	SF	H	** -6.4
W-712	150	208	34000	*12500	11.00/20D	12.00/20	Her RXLDH	6-4⅝x5¼	558	....	462	190-2600	Fu 5A650	5	Own W712	2F	H	** -6.9
(D) WA-906	160	205	40000	*16000	13.00/20D	14.00/20S	Cum HRBB-600	6-5½x6	743	....	505	175-2000	Fu 4A86	12	Own WA906	2F	H	** -6.15
W2200	160	205	40000	*16770	13.00/20D	14.00/20S	Bu MO779	6-5½x6	779	....	575	186-2100	Fu 4A86	12	Own W2200	2F	H	** -6.15
W2201	160	205	40000	*16770	13.00/20D	14.00/20S	Bu MO893	6-5½x6	893	....	670	206-1800	Fu 4A86	12	Own W2201	2F	H	** -6.15
W2206	160	205	54000	*19000	13.00/24D	14.00/24	HS 400	6-5⅝x7	*	....	930	295-2000	Fu 5F1220	10	Own W2206	2F	H	** -6.3
(D) WA2206	160	205	40000	*16900	13.00/20D	14.00/20S	Cum NHB-600	6-5½x6	743	....	535	200-2100	Fu 4A86	12	Own WA2206	2F	H	** -6.15
(D) W2209	160	205	54000	*19500	13.00/24D	14.00/24	Cum NHRS-600	6-5½x6	743	....	800	300-2100	Fu 5F1220	10	Own W2209	2F	H	** -6.30
Sterling HB1204	127	162	24000	*10350	9.00/20	10.00/20	Wau 6MZA	6-4¼x4¾	404	5.6	290	130-3000	Fu 5A43‡‡	10	T 72303DPH	2F	H	6.49-9.33
HA1204	160	176	26000	*11000	10.00/20	11.00/20	Wau 6SRKR	6-4½x5½	517	5.5	389	125-2250	Fu 5A62‡‡	10	T 72303DPH	2F	H	6.49-9.33
HB1604	152	163	32000	*12225	11.00/20	11.00/24	Wau 140GK	6-4½x5½	525	6.1	425	142-2250	Fu 5A62‡‡	10	Tim 1357W	2F	H	6.65-8.60
^^HB1904	152	163	38000	*14925	12.00/20	12.00/24	Wau 145GK^^	6-5½x6	779	6.2	585	186-2000	Fu 4A86‡‡	8	Tim 1758W	2F	H	7.33-10.2
HB2254	152	163	44000	*16350	12.00/20	13.00/24	Wau 145GKB	6-5½x6	779	6.2	595	222-2100	Fu 4A86‡‡	8	Tim 79721W	2F	H	7.66-10.2
(D) HB2254D	159	170	44000	*16625	12.00/20	13.00/24	Cu NHBD600	6-5½x6	743	15.0	537	200-2100	Fu 4A86‡‡	8	Tim 79721W	2F	H	7.66-10.2
Walter (c.f.) FZM	126	150	24000	9000	12.00/20S		Wau MZA	6-4¼x4¾	404	5.6	290	125-2600	Own FJN	6	Own FJN	2	H	** -9.00
(c.f.) AEB	126	150	32000	13000	12.00/24S		Wau 140GZ	6-4½x5½	554	6.2	440	150-2250	Own FC	6	Own FCC	2	H	** -9.00
(c.f.) AGB	138	162	32000	14000	12.00/24S		Wau 145GK	6-5¼x6	779	6.2	585	185-2000	Own FA	6	Own FCC	2	H	** -9.00
(c.f.) AGR	138	162	42000	15000	12.00/24D		Wau 145GK	6-5¼x6	779	6.2	585	185-2000	Own FA	6	Own FCR	2	H	** -9.00
Ward La France FD1			35000	*11500	11.00/22	11.00/22	Cont 6513	6-4¼x5¾	513	5.9	405	180-2800	Ful 5A620	5	Tim R462W	S2	R	** -8.15
(D) FD2			35000	*12000	11.00/24	11.00/24	Cum HB600	6-5½x6	672	17.0	500	150-1800	Ful 5A920	5	Tim R462W	S2	R	** -8.15
Willys Jeep CJ-3A	80	80	3500	*2108	6.00/16S	7.00/15S	Own CJ-3A	4-3⅛x4½	134	6.5	105	60-4000	WG T90C	26	Spi 44-2	Hy½	H	** -5.38
473-4WD	116	116	5300	*3115	7.00/16S		Own 473	4-3½x4½	134	7.4	114	72-4000	WG T90C	26	Tim 81540-G3†	S½	H	** -5.38
Six-Wheelers																		
(Wheels^ Driven)																		
Autocar C7064	172	172	40000	13000	10.00/20	10.00/22	Own 447	6-4¼x5¼	447	6.0	353	145-2700	Own TF-5†	5	Tim SBD1555	SF	L	5.87-7.90†
C7064S	173	172	45000	13500	10.00/20	11.00/22	Own 501	6-4¼x5¼	501	6.0	400	165-2700	Own TF-5	5	Tim SD3020	2F	L	6.84-10.22
C9064	168	169	54000	15675	11.00/20	11.00/24	Own 501	6-4¼x5¼	501	6.0	400	165-2700	Own TF-5‡	5	Tim SFD450	2F	L	7.33-10.81
(D) DC10064	167	238	45000	17100	10.00/20	11.00/20	Cum HRB600	6-5½x6	743	15.5	537	165-1800	Spi 8041‡	4	Tim SW3012	WF	L	4.71-6.16
(D) DC10064S	171	295	62000	19500	11.00/24	12.00/24	Cum HRB600	6-5½x6	743	15.5	537	165-1800	Spi 8041‡	4	Tim SFD480	2F	L	6.07-11.56
(D) DC20064S	171	171	80000	23000	11.00/24	††	Cum NHB600	6-5½x6	743	15.5	537	200-2100	Spi 8041‡	4	Tim SD472	2F	L	6.07-11.56
Corbitt G302R34-4R	173		34500		8.25/20	9.00/20	Can B6427	6-4⅜x4¾	427	5.9	325	127-2600	Fu 5A430	5	Tim 1055	SdF	L	5.71-7.40
G402R40-4R	173		40000		9.00/20	10.00/20	Con T6427	6-4⅜x4¾	427	6.3	336	151-2600	Fu 5A620	5	Tim 1555	SdF	L	5.87-7.80
D404R40-4R	173		40000		10.00/20		Cum JB5600	6-4½x5	401		345	150-2500	SP 6253	5	Tim 1555	SdF	L	5.87-7.80
(T)(D) D808Q46-2C	136		46000		10.00/20	11.00/22	Cum HRBB600	6-5½x6	743	17.0	540	175-2000	Fu 5C720	5	Tim R300	2F	H	4.93-5.91
(D) D802R46-4R	188		46000		10.00/20	11.00/20	Cum HRB600	6-5½x6	743	17.0	540	165-1800	Fu 10B1120	10	Tim SW3022	WF	L	4.71-6.17
Dodge B3YXL, B3YX	154	190	40000		10.00/20	10.00/20	Own T-325	6-4x5	377	6.5	330	154-3000	Cla 290V2	5	T SD3010P	2	L	** -8.27
Duplex TH6	162	220	30000	9180	8.25/20	9.00/20	Her JXD	6-4x4½	320	6.2	240	113-3000	Fu 5B33‡	10	Tim SBD1055	BF	L	** -6.16

For References and Abbreviations see page 149

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1952 TRUCK SPECIFICATIONS—*Concluded*

MAKE AND MODEL	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear)		ENGINE DETAILS							TRANSMISSION		REAR AXLE			
	Minimum Standard	Maximum Standard			Standard Front and Rear	Maximum Authorized Tire Size (Dual unless noted)	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given		Make and Model	Forward Speeds	Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Six-Wheelers—Cont'd																			
RH-6	160	206	40000	11500	10.00/20	11.00/20	Her WXLC3	6-4½×4½	404	5.8	312	139-2600		Fu 5A43	5	Tim SD3010	2F	R	6.27
(D) L8	172	206	45000	15000	11.00/20	12.00/20	Cum HB600	6-4⅞×6	672	17.0	485	150-1800		Fu 5A829	6	Tim SD464	SF2	L	6.8 -8.16
Federal 663MA	179	225	42000	14500	10.00/20	10.00/22	Con R6602‡‡	6-4⅞×5½	602	6.4	466	205-3000		Fu 5A65▼	15	T SW3012P†	WF	R	** -8.16
664MAB	179	225	60000	15850	11.00/22	12.00/20	Con R6602‡‡	6-4⅞×5½	602	6.4	466	205-3000		Spl 7741▼	12	Tim SW456P	WF	R	** -7.6
664MA	179	225	60000	15950	11.00/22	12.00/20	Con R6602‡‡	6-4⅞×5½	602	6.4	466	205-3000		Spl 7741▼	12	Tim SFD460	BR	R	** -8.15
2951T	163	199	34000	^8600	8.25/20	9.00/20	Her JXDF	6-4x4½	320	6.5	250	131-3200		Cla 205V‡‡▲	10	TSBD1095dph	SF	R	7.53 10.35
3051T	163	199	36000	^8635	8.25/20	9.00/20	Her JXLDF	6-4x4½	339	6.5	272	131-3200		Cla 205V‡‡▲	10	TSBD1055dph	SF	R	7.53 10.35
3451T	167	203	38000	^10400	9.00/20	10.00/20	Cen T6371F	6-4½×4½	371	6.4	297	144-3000		Cla 290V▲	10	TSBD1555dph	SF	R	8.33 11.47
645M	167	215	40000	12325	10.00/22	10.00/22	Con T6427‡‡	6-4⅞×4½	427	6.4	348	155-2600		Cla 290V	5	T-SD3010P†	BR	R	** -9.16
F.W.D. H6x6G	138	Opt		^12150	9.00/20D	10.00/20D	Wau MZA	6-4½×4½	404	5.8	291	130-3000		Own H	10	Own H	SF	T	** -7.45
H6x6G	138	Opt		^12600	9.00/20D	10.00/20D	Wau 140GKB	6-4½×5½	525	6.4	425	172-2600		Own H	10	Own H	SF	T	** -7.4
H6x6D	138	Opt		^12900	9.00/20D	10.00/20D	GMC 4-71	4-4½×5	284	16.	400	133-2000		Own H	10	Own H	SF	T	** -7.4
HCY6x6G	138	Opt		^13400	9.00/20D	10.00/20D	Wau 140GKB	6-4½×5½	525	6.4	325	172-2600		Own H	10	Own YU	SF	T	** -7.4
HCY6x6D	138	Opt		^13700	9.00/20D	10.00/20D	GMC 4-71	4-4½×5	284	16.	400	133-2000		Own H	10	Own YU	SF	T	** -7.4
MU6x6G	184	Opt		^16000	11.00/20D	12.00/20D	Wau 145GK	6-5½×6	779	6.2	580	186-2000		Own M	10	Own YU	SF	T	** -7.35
MU6x6D	184	Opt		^16360	11.00/20D	12.00/20D	GMC 6-71	6-4½×5	426	16.	600	200-2000		Own M	10	Own YU	SF	T	** -7.35
M6x6G	180	Opt		^21000	11.00/24D	12.00/24D	Wau 145GK	6-5½×6	779	6.2	580	186-2000		Own M	10	TW SD462	2F	L	** -6.07
M6x6G	180	Opt		^21600	11.00/24D	12.00/24D	Bu DA844	6-5½×6½	844	14.2	645	210-1800		Own M	10	TW SD462	2F	L	** -6.07
Kenworth (D) 522	191	255	42000	13900	10.00/20	11.00/22	Cum HB6	6-4⅞×6	672	17.	500	150-1800		BL 8241	4	T U200PA††	H2F	H	5.91-9.78
(D) 523.4R	191	255	42000	14600	10.00/20	11.00/22	Cum HB6	6-4⅞×6	672	17.	500	150-1800		BL 8241	4	T SW3012PA	WF	L	4.72-8.16
(D) 524.4R	195	255	42000	15500	10.00/20	11.00/22	Cum HB6	6-4⅞×6	672	17.	500	150-1800		BL 8241	4	Tim SW456P	WF	L	5.67-8.20
(D) 548.4R	191		60000	20200	11.00/22	12.00/24	Cum HB6	6-4⅞×6	672	17.	500	150-1800		BL 8241	4	Tim SFD460P	B2F	L	8.07-11.5
(D) 552.4R	202		50000	21000	13.00/24	13.00/24	Cum HB6	6-4⅞×6	672	17.	500	150-1800		BL 8241	4	Tim SFD460P	B2F	L	8.07-11.5
(D) 825.4R	195	255	42000	14400	10.00/20	1 .00/2	Cum HB6	6-4⅞×6	672	17.	500	150-1800		BL 8241	4	T GSW456P	WF	.	5.67 8.20
829.4R	178	255	42000	13600	10.00/20	11.00/22	Wau 140GZ	6-4⅝×5½	554	6.4	450	188-2600		Fu 5C680	5	T SD3010PA	B2F	L	6.84-10.2
Marmon-Herr.																			
(C) R5-6	156		22500	^6850	7.50/20D	7.50/20	Ford	6-3⅞×3⅝	239	6.4	180	100-3600		Ford	4	Timken	S	H	** -6.67
(C) R6-6	180		22500	^7100	7.50/20D	7.50/20	Ford	6-3⅞×3⅝	239	6.4	180	100-3800		Ford	4	Timken	S	H	** -6.67
(C) RS-COE8	156	180	22500	^7350	7.50/20D	7.50/20	Ford	6-3⅞×3⅝	239	6.4	180	100-3800		Ford	4	Ford	S	H	** -6.67
(C) Q-5-6	160		35000	^8550	9.00/20	10.00/20	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford	5	Ford	H	H	** -6.80
(C) Q-6-6	184		35000	^8700	9.00/20	10.00/20	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford	5	Ford	H	H	** -6.80
(C) Q-5L-6	172		35000	^8650	9.00/20	10.00/20	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford	5	Ford	H	H	** -6.80
(C) Q-6L-6	203		35000	^8825	9.00/20	10.00/20	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford	5	Ford	H	H	** -6.80
Oshkosh																			
W-24008X8	178	Opt	35000	^15150	10.00/20D	10.00/20	Her RXC	6-4⅝×5½	529		410	145-2200		Fu 5A620	10	Tim SFD-187	2F	L	** -6.1
W712-8X6	178	Opt	45000	^17400	11.00/20D	12.00/20	Her RXLDH	6-4⅝×5½	556		462	190-2600		Fu 5A650	10	Tim SD-3020	2F	L	** -6.1
(D) **W1602	Opt	Opt	95000		14.00/24	14.00/24	Optional							△	12	Tim SD472	2F	L	** - . . .
WA1608SG	Opt	Opt	60000	^22770	11.00/24D	12.00/24	Bu MO693††	6-5½×6	893		625	200-1800		Fu 4B186	12	Tim SFD4600	2F	L	** -6.5
(D) WA1600CD	Opt	Opt	60000	^23400	11.00/24D	12.00/24	Cum HB600**	6-4⅞×6	672		500	150-1800		Fu 4B186	12	Tim SFD4600	2F	L	** -6.1
(D) **WA1600CDH	Opt	Opt	60000	24000^	11.00/24D	12.00/24	Cum HB600**	6-4⅞×6	672		500	150-1800		Fu 4B186	12	Tim SFD4600	2F	L	** -6.1
Peterbilt																			
(D) 350	193	Opt	38000		10.00/20D	11.00/22	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	Tim SW-3456	WF	R	6.16-8.80
(D) 360	198	Opt	38000		10.00/20D	11.00/22	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	Tim SW456W	WF	R	6.16-8.80
(D) 370	198	Opt	44000		10.00/20D	11.00/22	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	Tim SW456W	WF	R	6.16-8.80
(D) 380	194	Opt	44000		10.00/20D	11.00/22	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	Tim SD462W	2F	R	** -6.07
(D) 380	197	Opt	79000		12.00/24	14.00/24	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	Tim SD472W	2F	R	** -10.16
(D) 350(c.o.e.)	135	Opt	38000		10.00/20	11.00/22	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	SW 3456	WF	R	6.16-8.80
(D) 360(c.o.e.)	135	.	38000		10.00/20	11.00/22	Cum HB600	6-4⅞×6	672	17.	500	150-1800		Spl 8041	12	SW 456	WF	R	6.16-8.80
Reo F-226	150	203	40000	10080	9.00/20	10.00/20	Own 331	6-4½×4½	331	6.4	264	140-3200		Cla 205V	5	Tim SFD157	F2	T	6.49-7.66
F-236	169	200	45000	12655	10.00/20	11.00/20	Con T6427	6-4⅞×4½	427	6.4	348	151-2800		Cla 290V	5	Tim SD3020	F2	T	7.5
Sterling																			
HA1605	164	235	32000	^12400	9.00/20	10.00/20	Wau6MZA	6-4½×4½	404	5.8	290	130-3000		Fu 5A43	5	T SBD1555P§	SF	L	6.80-13.1
HA1805	164	235	36000	^13100	10.00/20	11.00/20	Wau6MZA	6-4½×4½	404	5.8	290	130-3000		Fu 5A43-3A65	15	Tim SD3020P	2F	L	6.84-10.2
HB2205	168	231	44000	^14550	11.00/20	11.00/22	Wau 140GK	6-4½×5½	525	6.1	425	142-2250		Fu 5A62-3A65	15	Tim SD3020P	2F	L	6.84-10.2
**HB2755	168	231	55000	^15850	11.00/24	12.00/24	Wau 140GKB**	6-4½×5½	525	6.4	425	172-2700		Fu 5A62-3A65	15	Tim SW456P	WF	L	5.67-8.20
(D) HA2805D	188	251	52000	^17950	11.00/20	12.00/24	Cum NHB600	6-5½×6	743	15.	537	200-2100		Fu 4A86-3A92	12	Tim SW456P	WF	L	5.67-8.20
(D) TA2105D	188	251	42000	^16250	10.00/20	10.00/22	Cum NHB600	6-5½×6	743	15.	537	200-2100		Fu 4A86-3A92	12	Tim SW3012P	WF	L	4.71-6.17
(D) TA2115D	188	251	42000	^16375	11.00/20	11.00/22	Cum NHB600	6-5½×6	743	15.	537	200-2100		Fu 4A86-3A92	12	Tim SW3012P	WF	L	4.71-6.17
**HB2518	168	231	50000	^15500	11.00/20	11.00/24	Wau 140GK**	6-4½×5½	525	6.1	425	142-2250		Fu 5A62-3A65	15	Own 190W	CD	R	6.04-7.31
**HB2758	168	231	55000	^16750	11.00/24	12.00/24	Wau 140GKB**	6-4½×5½	525	6.4	425	172-2700		Fu 5A62-3A65	15	Own 230W	CD	R	6.04-7.31
(D) HB3008D	168	231	60000	^20000	11.00/24	12.00/24	Cum HBD600	6-4⅞×6	672	17.	495	150-1800		Fu 4A86-3A92	12	Own 320W	CD	R	10.4-13.2
(D) HB3506D	181	192	70000	^23750	12.00/24▼	13.00/24▼	Cum HBD600	6-4⅞×6	672	17.	495	150 1800		Fu 4A86-3A92	12	Own 330W	CD	R	10.4-13.2
(D) HB4506D	181	192	90000	^27300	14.00/24▼	14.00/24▼	Cu NHBD600	6-5½×6	743	15.	537	200-2100		F4A112-3A92	12	Own 340W	CD	R	** -11.59
(D) SF6506D	190	190	130000	^44500	16.00/24▼	16.00/24	Bu 8DA1125	8-5½×6½	•	13.	855	287-2100		F4A112-3A92	12	Own 500W	CD	R	** -14.88
(D) SF7506D	190	190	150000	^46500	18.00/24▼	18.00/24▼	Bu 8DAS1125	8-5½×6½	•	13.	960	350-2100		F4A112-3A92	12	Own 500W	CD	R	** -14.88
Truckstell																			
(C) F4X26-4R	144	209	26000	7300^	7.50/20	8.25/20^	Ford	6-3⅞×3⅝	239	6.8	180	100-3800		Ford □□	8	Ford	SF	R	** -6.67
(C) F4X27(c.o.e.) 4R	126	185	27000	7665^	7.50/20	8.25/20^	Ford	6-3⅞×3⅝	239	6.8	180	100-3800		Ford □□	8	Ford	SF	R	** -6.67
F4X29-4R	156	200	29000	7850^	7.50/20	8.25/20-10	Ford	6-3⅞×3⅝	239	6.8	180	100-3800		Ford††	12	Ford	HyF	R	** -7.2
F4X30 4R	126	185	30000	8200^	7.50/20	8.25/20-10	Ford	6-3⅞×3⅝	239	6.8	180	100-3800		Ford††	12	Ford	HyF	R	** -7.2
(C) F4X29-4R	156	200	29000	7800^	8.25/20	9.00/20	Ford	6-3.5x4.4	254	6.8	212	110-3400		Ford††	12	Ford	Hy	R	** -7.2
(C) F4X30(c.o.e.) 4R	126	185	30000	8200^	8.25/20	9.00/20	Ford	6-3.5x4.4	254	6.8	212	110-3400		Ford††	12	Ford	Hy	R	** -7.2
(C) F4X34-4R	156	228	34000	10000^	8.25/20	9.00/20^	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford††	15	Ford	HyF	R	** -6.8
(C) F4X38 4R	156	228	38000	10650^	9.00/20	10.00/20^	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford††	15	Ford	HyF	R	** -7.16
F4X40-4R	156	228	40000	11340	9.00/20	10.00/20	Ford	6-3⅞×4½	337	6.4	255	145-3600		Ford††	15	Ford	Hy	.	** -6.67
(C) C4X28-4R	151	217	28000	7500^	7.50/20	8.25/20^	Chev.	6-3⅞×3½	235	6.6	192	93-3100		Chev.□□	8	Chev.	HyF	R	** -6.17
(C) C4X29(c.o.e.)4R	125	192	29000	7865^	7.50/20	8.25/20^	Chev.	6-3⅞×3½	235	6.6	192	93-3100		Chev.□□	8	Chev.	HyF	R	** -6.17
C4X29-4R	151	217	29000	8040^	7.50/20	9.00/20-10	Chev.	6-3⅞×3½	235	6.6	192	93-3100		Chev.††	12	Chev.	HyF	R	** -6.17
C4X30(c.o.e.)4R	125	192	30000	8400^	7.50/20	9.00/20-10	Chev.	6- x3½	235	6.6	192	93-3100		Chev.††	12	Chev.	HyF	R	** -6.17
Ward La France DIT‡	180	220	39500		10.00/20	11.00/20	Con T6427	6-4⅞×4½	427		348	152-2600		Fu 5A434▲	15	Tim SD3010P	2F	L	** -8.27
D2KT^^	180	220	39500		10.00/20	11.00/20	Wau 140GK	6-4½×5½	525		425	168-2400		Fu 5C654▲	15	Tim SD3010P	2F	L	** -7.50
D2ZT^^	180	220	39500		10.00/20	11.00/20	Wau 140GZ	6-4⅝×5½	554		450	184-2400		Fu 5C654▲	15	Tim SD3010P	2F	L	** -7.50
D3T^^	180	220	39500		10.00/20	11.00/20	Con R6572	6-4⅝×5½	572		440	198-2600		Fu 5C654▲	15	Tim SD3010P	2F	L	** -7.50
D3ST^^	180	220	39500		10.00/20	11.00/20	Con R6602	6-4⅞×5½	602		463	206-2600		Fu 5C654▲	15	Tim SD3010P	2F	L	** -7.50
(D) D5T^^	180	220	42000		11.00/20	11.00/20	Cum HB600	6-4⅞×6	672		500	150-1800		Fu 5C724▲	15	Tim SD3010P	2F	L	** -6.84
(D) D5RT^^	180	220	42000		11.00/20	11.00/20	Cum HRB600	6-5½×6	743		540	165-1800		Fu 5C724▲	15	Tim SD3010P	2F	L	** -6.84
(D) D5NT^^	180	220	42000		11.00/20	11.00/20	Cum NHB600	6-5½×6	743		540	200-2100		Fu 5C724▲	15	T SW3012PA	WF	L	** -6.17
White(D) WC2864TD	158	176	72000	14530	9.00/20	11.00/22									10				4.71-6.18
White-Freightliner																			
(c.o.e.) WF64	178			13500	10.00/22			††	6-5½×6	743	13.	575	200-2100	Spl 8041	12	Own	WF	H	** -8.00
(c.o.e.) WF64T	156			13900	10.00/22			††	6-5½×6	743	13.	575	200-2100	Fu 10B1120	10	Own	WF	H	** -8.00

For References and Abbreviations see page 149

For Directory of the Manufacturers listed above, see page 338

1952 CAR AND

Line Number	BUS MAKE AND MODEL	GENERAL: Passenger Rating	Type (City Service, Parlor, etc.)	Standard Wheelbase (In.)	Overall Length (In.)—Bumper to Bumper*	Inside Length (In.)—Passenger Compartment	Tread (In.)—Front and Rear	Complete Vehicle Weight—Dry (Lb.)	Standard Tire Size (In.)—Front and Rear	ENGINE: Make and Model	Cycle and Fuel	Location	Number of Cylinders—Bore and Stroke (In.)	Displacement (Cu. In.)	Rated Horsepower (A.M.A.)	Maximum Brake Hp. at Governed R.P.M.	Maximum Net Torque (Lb. Ft.) at Specified R.P.M.	Compression Ratio — to 1	Compression Pressure (Lb.) at Specified R.P.M.	Valve Arrangement	Oiling System: Pressure to
1	ACF-Brill 1C-41A	37 41	IC	270	419½	387	90½ 71½	20000	11.00-22	HS 190-5	1-G	UF	6-5½x6	779	86.2	220	2200	625 1300	5.60		I	acdfgh
2	C-27	27	CS	163	311	279	72½ 74	10600	8.25-20	Int RD-372	4-G	TR	6-4⅝x4½	372	45.9	140	2850	282 1400	5.30		I	acdfgh
3	C-31	31	CS	196	344	312	81½ 74	11300	9.00-20	Int RD-406	1-G	TR	6-4⅝x4½	406	45.9	149	2750	319 1200	6.30		I	acdfgh
4	C-44	44	CS	249	420	391	80½ 71	17800	11.00-22	HS 180-1	1-G	UF	6-5x6	707	60.0	208	2200	540 1400	5.00		I	acdfgh
5	C-44	45	Sub	249	420	391	90½ 71	18900	11.00-22	HS 190-2	1-G	UF	6-5½x6	779	66.2	220	2200	625 1300	5.60		I	acdfgh
6	C-48	48	CS	247	474	444½	98½ 74½	19200	12.00-20	HS 190-2	1-G	UF	6-5½x6	779	66.2	220	2200	625 1300	5.60		I	acdfgh
7	SU-37	37	Sub	198	358	325	81½ 74	12900	9.00-20	Int RD-450	1-G	TR	6-4⅝x5	451	45.9	158	2600	358 1200	5.20		I	acdh
8	Aerocoach 373	37	IC	229	407¾	389	90¾ 72½	16500	10.00-20	Cont U6501	4-G	TR	6-4⅛x5½	501	48.6	170	2400	380 1200	6.14		I	abcdf
9	Beaver 21PT	29	CS	150½	312	153	79 65½	11800	8.25-20	Dodge Ind. 8	4-G	TR	6-3⅞x4½	251	28.5						I	abcd
10	B-35PT	37	CS	195½	372	192	81 71½	13500	9.00-20	Int RD450	1-G	TR	6-4⅝x5	451	56.0	152	2600	358 1200	6.30	122 160	I	abcd
11	Beck Luxury Liner	37	IC	220	420	356	90¼ 71½		11.00-20	Cum HRB600	4-D	R	6-5½x6	743	63.1	165	1800	540 1000	15.5		I	abcd
12	Mainliner	37	P	220	412	350	90¼ 71½		10.00-20	Int RD450*	4-G	R	6-4⅝x5	450	45.9	146	2600	354 1000	5.20		I	abcd
13	29-33	29 33	P	217½	402	288	80¼ 71½		10.00-20	Cum JBS600*	4-D	R	6-4½x5	401	40.6	150	2500	360 1500	15.5		I	abcd
14	Fitzjohn FTG Cityliner	29 31	CS	155½	323¼	277	81½ 74	12000	8.25-20	Her JXLD	4-G	TR	6-4x4½	339	38.4	131	3000	272 1400	6.20		L	abcdg
15	FTG Cityliner	29 31	CS	155½	323¼	277	81½ 74	12400	8.25-20	Her WXLD	4-G	TR	6-4⅛x4⅝	404	43.3	140	2600	316 1400	5.50		L	ac
16	FTG Cityliner	30 35	CS	182½	351	304⅝	81½ 74	12750	9.00-20	Her JXLD	4-G	TR	6-4x4½	339	38.4	131	3000	272 1400	6.20		L	abcdg
17	FTG Cityliner	33 35	CS	182½	351	304⅝	81½ 74	13150	9.00-20	Her WXLD	4-G	TR	6-4⅛x4⅝	404	43.3	140	2600	316 1400	5.50		L	ac
18	FTD Cityliner	33 35	CS	182½	351	304⅝	81½ 74	13800	9.00-20	Her DWXLD	4-D	TR	6-4⅛x5	426	43.3	142	2600	330 1500	15.5		VI	abcd
19	FTD Cityliner	37 39	CS	210½	378¾	332½	81½ 74	13900	10.00-20	Her WXLD	4-G	TR	6-4⅛x4⅝	404	43.3	140	2600	316 1400	5.50		L	ac
20	FTD Cityliner	37 39	CS	210½	378¾	332½	81½ 74	14550	10.00-20	Her DWXLD	4-G	TR	6-4⅛x5	426	43.3	142	2600	330 1500	15.5		VI	abcd
21	FSG Suburbanliner	29	Sub	155½	325¼	277	81½ 74	12500	8.25-20	Her JXLD	4-G	TR	6-4x4½	339	38.4	131	3000	272 1400	6.20		L	abcdg
22	FSG Suburbanliner	29	Sub	155½	325¼	277	81½ 74	12900	8.25-20	Her WXLD	4-G	TR	6-4⅛x4⅝	404	43.3	140	2600	316 1400	5.50		L	ac
23	FSG Suburbanliner	33	Sub	182½	351	304⅝	81½ 74	13250	9.00-20	Her JXLD	4-G	TR	6-4x4½	339	38.4	131	3000	272 1400	6.20		L	abcdg
24	FSG Suburbanliner	33	Sub	182½	351	304⅝	81½ 74	13650	9.00-20	Her WXLD	4-G	TR	6-4⅛x4⅝	404	43.3	140	2600	316 1400	5.50		L	ac
25	FSD Suburbanliner	33	Sub	182½	351	304⅝	81½ 74	14300	9.00-20	Her DWXLD	4-D	TR	6-4⅛x5	426	43.3	142	2600	330 1500	15.5		VI	abcd
26	FSG Suburbanliner	37	Sub	210½	378¾	332½	81½ 74	14400	10.00-20	Her WXLD	4-G	TR	6-4⅛x4⅝	404	43.3	140	2600	316 1400	5.50		L	ac
27	FSD Suburbanliner	37	Sub	210½	378¾	332½	81½ 74	15050	10.00-20	Her DWXLD	4-D	TR	6-4⅛x5	426	43.3	142	2600	330 1500	15.5		VI	abcd
28	510 Duraliner	28 32	IC	185¾	321¼	286	77¾ 65½	13500	9.00-20	Her JXLD	4-G	Fr	6-4x4½	339	38.4	131	3000	272 1400	6.20		L	abcdg
29	635 Superduraliner	36 40	IC	254½	401½	365	80 71½	17800	11.00-20	Wau 140GKB	4-G	Fr	6-4⅞x5½	525	56.0	176	2600	435 800	6.40		I	acdfgh
30	Flexible 218B1-51	29	IC	218	410⅜	300	90½ 69¾	15175	9.00-20	Sui FB320	4-G	R	6-3⅞x4⅜	320	37.8	144	3400	278 2200	6.30		I	acdf
31	218B6-51	29	IC	218	410⅜	300	90½ 69¾		9.00-20	Sui FB320	4-G	R	6-3⅞x4⅜	320	37.8	144	3400	278 2200	6.30		I	acdf
32	218B7-51	37	IC	218	410⅜	338	90½ 69¾	15100	9.00-20	Sui FB320	4-G	R	6-3⅞x4⅜	320	37.8	144	3400	278 2200	6.30		I	acdf
33	182B1-51	25	IC	182	374⅜	264	80½ 69¾	14600	9.00-20	Sui FB320	4-G	R	6-3⅞x4⅜	320	37.8	144	3400	278 2200	5.30		I	acdf
34	218DWX1-51	29	IC	218	410⅜	264	90½ 69¾	16250	9.00-20	Her DWXLD	4-D	R	6-4⅛x5	426	43.3	142	3600	330 1700	15.0		I	abcd
35	218DWX7-51	37	IC	218	410⅜	338	90½ 69¾		9.00-20	Her DWXLD	4-D	R	6-4⅛x5	426	43.3	142	3600	330 1700	15.0		I	abcd
36	218F1-52	29	IC	218	410⅜	301	90½ 69¾	15610	9.00-20	Fag FTC180	4-G	R	6-4⅛x4¾	404	43.3	162	2800	362 1600	7.50		I	abc
37	G.M.C. PD4103	41	IC	247	420	387	79¾ 70½	18600	11.00-20	Own 6-71	2-D	TR	6-4½x5	426	43.3	200	2000	600 1200	16.0	500 1000	I	abcdfgh
38	TGH2708	27	CS	151½	296½	258	81½ 75½	9010	8.25-20	Own 270	4-G	TR	6-3¾x4	270	34.3	107	3200	212 1000	6.75	165 1000	I	abcdfgh
39	TGH3101	31	CS	180½	325½	237	81½ 75½	9355	8.25-20	Own 270	4-G	TR	6-3¾x4	270	34.3	107	3200	212 1000	6.75	165 1000	I	abcdfgh
40	TDM3612	36	CS	210½	369½	337	80½ 72½	14905	9.00-20	Own 4-71	2-D	TR	6-4¼x5	284	28.9	133	2000	400 1200	16.0	500 1000	I	abcdfgh
41	TDM4509	45	CS	238½	420	390	79¾ 70½	16720	10.00-20	Own 6-71	2-D	TR	6-4½x5	426	43.3	170	2000	545 1000	16.0	500 1000	I	abcdfgh
42	TDH3612	36	CS	210½	369½	337	80½ 72½	14770	9.00-20	Own 4-71	2-D	TR	6-4¼x5	284	28.9	133	2000	400 1200	16.0	500 1000	I	abcdfgh
43	TDH4509	45	CS	238½	420	390	79¾ 70½	16550	10.00-20	Own 6-71	2-D	TR	6-4½x5	426	43.3	170	2000	545 1000	16.0	500 1000	I	abcdfgh
44	TDH4511	45	CS	238½	420	390	85¾ 75½	17220	11.00-20	Own 6-71	2-D	TR	6-4½x5	426	43.3	170	2000	545 1000	16.0	500 1000	I	abcdfgh
45	TDH5103	51	CS	281½	477	441	97¾ 76½	18440	11.00-20	Own 6-71	2-D	TR	6-4½x5	426	43.3	200	2000	600 1200	16.0	500 1000	I	abcdfgh
46	TDH5104	51	CS	281½	477	441	97¾ 70½	17690	11.00-20	Own 6-71	2-D	TR	6-4½x5	426	43.3	200	2000	600 1200	16.0	500 1000	I	abcdfgh
47	Kalamazoo	29	IC	194	316		70 66		8.25-20	Int K-7	4-G	Fr	6-3⅞x4½	269	30.4	101	3000	222 1600	6.30		I	abcdf
48		21 27	CIC	160	281		70 66		7.50-20	Int K-7	4-G	Fr	6-3⅞x4½	269	30.4	101	3000	222 1600	6.30		I	abcdf
49	Mack C33	33	CS	180	344	313	79½ 71½	15830	10.00-20	Own EN510A	4-G	TR	6-4⅞x5½	510	47.2	158	2400	366 1000	6.07	135 1000	I	acdeh
50	C37	37	CS	213½	377¾	346½	79½ 71½	16370	10.00-20	Own EN510A	4-G	TR	6-4⅞x5½	510	47.2	158	2400	366 1000	6.07	135 1000	I	acdeh
51	C41-Diesel	41	CS	237½	396	366½	79½ 71½	18815	11.00-22	Own END672	4-D	TR	6-4¾x6	672	57.0	165	2000	445 1200	14.6	450 1000	I	acdeh
52	C45-Diesel	45	CS	261½	420	390½	79½ 71½	19225	11.00-22	Own END672	4-D	TR	6-4¾x6	672	57.0	165	2000	445 1200	14.6	450 1000	I	abcdefgh
53	C37-Diesel	37	CS	213½	380½	346½	79¾ 71½	16955	10.00-20	Own END672	4-D	TR	6-4¾x6	672	57.0	145	2150	370 1200	14.6	450 1000	I	acdeh
54	C50	49	CS	272	479	443	82¾ 71½	21765	11.00-22	own ENDS672	4-D	TR	6-4¾x6	672	57.0	222	2000	595 1400	13.2	440 1000	I	acdeh
55	Marmon-Herrington 8MB	27	CS	146	312		80⅞ 85⅛	9800	8.25-20	Ford 254	4-G	TR	6-3⅛x4½	254	29.4	104	3000	212 1200	5.85		L	acd
56	8M2B	31	CS	182	348			10000	8.25-20	Ford 254	4-G	TR	6-3⅛x4½	254	29.4	104	3000	212 1200	6.85		L	acd
57	Southern Coach F-31	32	CS	175	321½	305	80½ 71½	12800	9.00-20	Wau 6MZA	4-G	UF	6-4⅛x4⅝	404	43.4	115	2200	305 1300	5.90		L	abcdegh
58	F-35	36	CS	196	356½	340	80½ 71½	13500	10.00-20	Wau 6MZA	4-G	UF	6-4⅛x4⅝	404	43.4	115	2200	305 1300	5.90		L	abcdegh
59	S-36	36	CS	196	356½	340	80½ 71½	15000	10.00-20	Wau 140GKB	4-G	UF	6-4⅞x5½	525	48.6	170	2400	435 800	6.40		I	abcdefgh
60	S-41	41	CS	222½	391½	375	80½ 71½	15850	11.00-20	Wau 140GKG	4-G	UF	6-4⅞x5½	525	48.6	170	2400	435 800	6.40		I	abcdefgh
61	DF-35-H	36	CS	196	356½	340	80½ 71½	14000	10.00-20	Her DWXLDF	4-D	UF	6-4⅛x5	426	43.3	142	2600	316 1400	15.5	500 Cr	I	abcdfh
62	DF-36-H	36	CS	196	356½	340	90½ 71½	14000	10.00-20	Her DRXCF	4-D	UF	6-4⅝x5½	529	51.3	147	2200	388 1300	15.0	500 Cr	I	abcdfh
63	Transit O1	31	CS	179	354¾	301	81 73	12500	9.00-20	Cont B6427	4-G	TR	6-4⅞x4⅞	427	44.7	127	2600	325 1200	6.43		L	abcdg
64	White 1136	36 37	CSS	191	360½		82½ 71¾	16135	10.00-20	Own 280TA	4-G	UF	6-4⅝x5	504	51.3	175	2800	410 1400	6.50		L	abcdh
65	1140	40 41	CSS	214	395½		82½ 71¾	16655	11.00-20	Own 280TA	4-G	UF	6-4⅝x5	504	51.3	175	2800	410 1400	6.50		L	abcdh
66	1144 & 1144S	44	CSS	238	419½		82½ 71¾	17300	11.00-20	Own 24A	4-G	UF	12-4½x4½	681	81.7	210	2800	500 1400	6.10		L	abcdh
67	1144D & 1150D	44 50	CS	268	468		96⅞ 77¾	19500	12.00-20	Cum NHHE	1-D	UF	6-5½x6	743	63.0	200	2100	540 1300	15.5		I	abcd

ABBREVIATIONS

&—Two used.
‡—Torque converter.
♦—Also available with Cummins JBS-600 engine.
††—Right side 13 leaves, left side 14 leaves.
*—Also available with International RD450 engine.
†—Front, 147¾; rear, 15.

•—Hundred rpm.
‡—City, 44; Suburban, 42 or 45.
a—Main bearings.
b—Wrist pins.
c—Connecting rods.
d—Camshaft.
e—Accessory drive.
f—Valve lifters or rocker arms and shafts.
g—Timing gears or chain.
h—Air compressor.
A—Air.

AL—Electric Auto-Lite Co.
BB—Borg & Beck.
Ben—Bendix Products.
BL—Brown Lipe Div.
Bos—American Bosch Corp.
Bui—Buick Motor Div.
Car—Carter Carburetor Corp.
Ce—Centrifugal.
CIC—City and Intercity Service.
Cla—Clark Equipment Co.
Cont—Continental Motors Corp.
Cr—Cranking speed.
CS—City Service.
CSS—City and Suburban Service.
Cum—Cummins Engine Co.
D—Diesel fuel.
Dge—Dodge.
Do—Downdraft.
DR—Delco-Remy Div.
Ds—Drive shaft.
Fag—Fageol.
Fo—Ford Motor Co.

For Directory of the Manufacturers listed above, see page 338

INTERCITY BUSES

FUEL SYSTEM				ELECTRICAL SYSTEM				Gov-ernor			TRANSMISSION				Uni-versals		REAR AXLE		BRAKES					SPRINGS				RUNNING GEAR			
Carburetor or Injector Pump						Battery													Service			Hand		Front		Rear					
Make and Type	Size (In.)	Tank Capacity (Gal.)	Ignition System—Make	Generator and Starter—Make	Voltage and Amp. Hours Capacity	Type	Max. Governed Speed—M.P.H.	Clutch—Make and Size (In. diam.)	Make	No. of Forward Speeds	Low Speed Ratio—to 1	Type	Number	Size of Series	Make and Model	Standard Gear Ratio—to 1	Type of Applicator	Total Lining Area (Sq. In.)	Drum Diam. (In.)	Operates on—	Total Lining Area (Sq. In.)	No. of Leaves	Length and Width (In.)	No. of Leaves	Length and Width (In.)	Front Axle—Make	Steering Gear—Make	Outside Diameter of Min. Turn. Circle (Ft.)	Line Number
Zen Up	2	150	DR	DR	12-160	Ce	68	Lg 17	Spi	4	4.36	M	2	1700	Tim. R-112-W	4.11	A	898	16½	Ds	127	12	64-4	13	70-5	Tim	Ro	84	1
Hol Do	1¼	65	DR	LD	12-160	Va	51	Lg 14	Cla	3	4.06	M	2	1500	Tim. 56434W	5.71	A	533	14½	Ds	85	11	60-3	12	64-3	Cla	Ro	64	2
Zen Up	2	107	DR	LD	12-160	Ce	51		Spi‡	If		H	2	1700	Tim. 59070W	5.14	A	830	16½	Ds	85	12	60-3	12	64-3	Cla	Ro	72	3
Zen Up	2	107	DR	LD	12-160	Ce	68	Lg 17	Spi	4	4.36	M	2	1700	Tim. 59070W	4.11	A	830	16½	Ds	127	12	66-4	12	70-4	Tim	Ro	85	4
Zen Up	2	120	DR	DR	12-160	Ce	52		Spi‡	If		H	2	1700	Tim. R-110-DPA	5.57	A	848	15	Ds	127	12	62-4	14	68-5	Tim	Ro	85	5
Hol Do	1¼	75	DR	LD	12-160	Su	54	Lg 14	Cla	3	4.06	M	2	1600	Tim. 56434W	5.29	A	533	14½	Ds	85	12	60-3	12	64-3	Cla	Ro	74	7
Zen Do	1½	100	DR	DR	12-165	Su	65	Lg 15	Cla	4	4.44	M	2	1600	Tim. 58434	4.11	A	760	16½	Ds	115	10	51-4	11	64½-4	Tim	Ro	64	8
Car Up		65	AL	AL	12-158	Su	58	TD 12	Dge	4		M	2	1400	Tim. 54440	5.71	M		14½	Ds		14	60-3	16	60-3	Tim	Ro	55	9
Hol Do		80	DR	DR	12-158	Ce	55	Roc 14	Spi	3	3.80	M	2	1500	Tim. L110	5.28	A	614	15	Ds	45	10	60-3	16	60-3	Tim	Ro	85	10
Cum		90		LN	12-110		68	LR 17	Fu	5	6.37	M	2	1600	Tim. Q-110-DPA	4.62	A		15	Ds			54-4		70-4	Tim	Ro	80	11
Hol Do		92	DR	LD	12-155	Su	60	Lg 14	Fu	4	4.61	M	2	1500	Tim. L110	5.28	A		16½	Ds		16	52-3	††	64-4	Tim	Ro	80	12
Cum		80		LD	12-155	M	58	Lg 14	Fu	4	4.61	M	2	1500	Tim. L110	5.29	A		16½	Ds		16	52-3	17	58-3	Tim	Ro	78	13
Zen Up	1¾	60	DR	DR	12-150	Ce	53	BB 13	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	60-3	Tim	Ro	57	14
Zen Do	1¾	60	DR	LD	12-150	Ce	53	Lg 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	60-3	Tim	Ro	57	15
Zen Up	1¾	60	DR	DR	12-150	Ce	53	BB 13	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	60-3	Tim	Ro	65	16
Zen Do	1¾	60	DR	LD	12-150	Ce	53	Lg 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	60-3	Tim	Ro	65	17
Bos		60	DR	LD	12-205	Ce	53	BB 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	60-3	Tim	Ro	65	18
Zen Do	1¾	60	DR	LD	12-150	Ce	53	BB 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	60-3	Tim	Ro	65	19
Bos		60	DR	LD	12-205	Ce	53	BB 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	15	54-3	15	54-3	Tim	Ro	73¾	19
Zen Up	1¾	60	DR	DR	12-150	Ce	53	BB 13	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	15	54-3	15	54-3	Tim	Ro	73¾	20
Zen Do	1¾	60	DR	LD	12-150	Ce	53	Lg 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	54-3	Tim	Ro	57	21
Zen Up	1¾	60	DR	DR	12-150	Ce	53	BB 13	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	54-3	Tim	Ro	57	22
Zen Do	1¾	60	DR	LD	12-150	Ce	53	Lg 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	54-3	Tim	Ro	65	23
Bos		60	DR	LD	12-205	Ce	53	BB 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	54-3	Tim	Ro	65	24
Zen Do	1¾	60	DR	LD	12-150	Ce	53	Lg 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	14	54-3	14	54-3	Tim	Ro	65	25
Bos		60	DR	LD	12-205	Ce	53	BB 14	Cla	3	4.06	M	2	1600	Tim. 56434W	6.16	A	586	14½	Ds	85	15	54-3	15	54-3	Tim	Ro	73¾	26
Zen Up	1¾	73	DR	DR	12-150	Ce	65	LR 13	Cla	4	5.00	M	3	1400	Tim. 54430W	4.85	A	496	14½	Ds	88	11	50-3	13	63½-3	Tim	Ro	73¾	27
Zen Up	1¾	120	DR	DR	12-150	Ce	65	LR 15	Cla	4	4.34	M	4	1600	Tim. L110	5.28	A	614	15	Ds	126	14	54-4	16	72-4	Tim	Ro	86½	28
Str Do		80	DR	DR	12-155	Ce	63	Spi 13	Spi	5	6.93	M	2	1500	Tim. H110	6.17	A	578	15	Ds	45	12	52-3	15	56-3	Tim	Ro	72	30
Str Do		80	DR	DR	12-155	Ce	63	Spi 13	Spi	5	6.93	M	2	1500	Tim. H110	6.17	A	578	15	Ds	45	12	52-3	15	56-3	Tim	Ro	72	31
Str Do		80	DR	DR	12-155	Ce	63	Spi 13	Spi	5	6.93	M	2	1500	Tim. H110	6.17	A	578	15	Ds	45	12	52-3	15	56-3	Tim	Ro	72	32
Bos		80		DR	12-155	Ce	60	Spi 13	Spi	5	6.93	M	2	1500	Tim. H110	6.17	A	578	15	Ds	45	12	52-3	15	56-3	Tim	Ro		33
Bos		80		DR	12-155	Ce	60	Spi 13	Spi	5	6.93	M	2	1500	Tim. H110	4.62	A	578	15	Ds	45	12	52-3	15	56-3	Tim	Ro	72	34
Hol Do		80	DR	DR	12-155	Ce		Spi 14	Spi	5	6.93	M	2	1500	Tim. H110	4.62	A	578	15	Ds	45	12	52-3	15	56-3	Tim	Ro	72	35
															FT. H110-DPA	4.62	A	578	15	Ds	45	12	52-3	15	56-3	FT	Ro	72	36
Own		100		DR	12-155▲	Ce	67	Lg 17	Spi	4	3.86	M	2	1700	Tim. 59039WXZ	3.55	A	705	14½	Ds	125½	11	58-4	14	72-4	Tim	Ro	84	37
Zen Do	1½	60	DR	DR	12-155	Ce	52		GH	4	3.82	H	2	1400	Cla. R-1203	6.33	A	496	14½	Ds	28	8	52-3	11	59-3	Cla	Sag	60	38
Zen Do	1½	60	DR	DR	12-155	Ce	52		GH	4	3.82	H	2	1400	Cla. R-1203	6.33	A	496	14½	Ds	28▲	10	52-3	11	59-3	Cla	Sag	66	39
Own		85		DR	12-117▲	Ce	59	Lg 17	Spi	4	4.36	M	2	1600	Tim. 57452WX4	3.87	A	646	14½	Ds	69	9	60½-4	12	62-4	Tim	Sag	73	40
Own		85		DR	12-117▲	Ce	61	Lg 17	Spi	4	4.36	M	2	1700	Tim. 59464WX1	3.87	A	764	14½	Ds	104	10	60½-4	14	64½-4	Tim	Sag	80	41
Own		85		DR	12-117▲	Ce	47	Own 15	GM‡	If		H	2	1600	Tim. 57460WX1	4.71	A	646	14½	Ds	69	9	60½-4	12	62-4	Tim	Sag	73	42
Own		85		DR	12-117▲	Ce	48	Own 15	GM‡	If		H	2	1700	Tim. 58473WX1	4.71	A	764	14½	Ds	104	10	60½-4	14	64½-4	Tim	Sag	80	43
Own		85		DR	12-117▲	Ce	49	Own 15	GM‡	If		H	2	1700	Tim. 58475W	4.71	A	764	14½	Ds	104	12	60½-4	15	64½-4	Tim	Sag	72	44
Own		85		DR	12-117▲	Ce	45	Own 15	GM‡	If		H	2	1700	Tim. 59146	5.16	A	874	14½	Ds	104	13	60½-4	14	64½-5	Tim	Sag	77	45
							45	Own 15	GM‡	If		H	2	1700	Tim. 59145W	5.16	A	874	14½	Ds	104	13	60½-4	14	64½-5	Tim	Sag	76	46
Hol Do		31	AL	AL	6-205		58	Int 10⅞	Int	5	6.52	M	3		Int. R1560	5.62	H	421		Ds	75		46-21¼		54-3	Int	Ro	59	47
Hol Do		31	AL	AL	6-205		57	Int 10⅞		5	6.52	M	3		Int. R1560	5.62	H	421	†	Ds	75	9	46-21¼	11	54-3		Ro	59	48
Zen Up	1¾	75	DR	DR	12-158	Ce	24*	Spi 14	Spi‡	If		H	2	1600	Own. RAS1061	Var	A	740	15	Ds	61	11	62-3½	15	62-4	Own	Gem	55	49
Zen Up	1¾	75	DR	DR	12-158	Ce	24*	Spi 14	Spi‡	If		H	2	1600	Own. RAS1061	Var	A	740	15	Ds	61	11	62-3½	15	62-4	Own	Gem	64	50
Bos	B	85		DR	12-200	H	20*	Spi 16	Spi‡	If		H	2	1700	Own. RAS1031	Var	A	884	16½	Ds	139	11	70-4	15	62-4	Own	Gem	75	51
Bos	B	85		DR	12-200	H	20*	Spi 16	Spi‡	If		H	2	1700	Own. RAS1031	Var	A	884	16½	Ds	139	11	70-4	15	62-4	Own	Gem	80	52
Bos	B	75		DR	12-200	H	21*	Spi 14	Spi‡	If		H	2	1600	Own. RAS1061	Var	A	740	15	Ds	61	11	62-3½	15	62-4	Own	Gem	64	53
Bos	BB	85		DR	12-200	H	20*	Spi 16	Spi‡	If		H	2	1700	Own. RAS502	Var	A	1088	16½	Ds	139	12	62-4	15	62-4	Own	Ben	67	54
Hol Do	1¼	60	Fo	Fo	12-158	Su	45		12 Spi	3	3.54	M			Tim	6.67	A	448	14½	Ds	83		54-3		58-3	Tim			55
Hol Do	1¼	60	Fo	Fo	12-158	Su	45		12 Spi	3	3.54	M			Tim	6.67	A	448	14½	Ds	83		54-3		58-3	Tim			56
Zen Do	1¾	72	Op	Op	12-Op	Ce	50	BL 14	Spi	3	3.80	M	2	1600	Tim. H110DPA	5.28	A	576	15	Ds	96	10	62-3½	10	70-4	Tim	Ro	64	57
Zen Do	1¾	92	Op	Op	12-Op	Ce	50	BL 14	Spi	3	3.80	M	2	1600	Tim. L110DPA	6.16	A	631	15	Ds	96	11	62-3½	12	70-4	Tim	Ro	68	58
Zen Do	1¾	92	Op	Op	12-Op	Ce	50	BL 13	Spi	4	4.67	M	2	1600	Tim. L110DPA	6.16	A	651	15	Ds	96	11	62-3½	12	70-4	Tim	Ro	68	59
Zen Do	1¾	110	Op	Op	12-Op	Ce	50		Spi‡	If		H	2	1600	Tim. Q-110-DPA	6.17	A	651	15	Ds	96	11	62-3½	12	70-4	Tim	Ro	68	59
Bos		92	Op	Op	24-▲	H	50		Spi‡	If		H	2	1600	Tim. L110DPA	6.16	A	631	15	Ds	101	12	62-3½	14	70-4	Tim	Ro	74	60
Bos		92	Op	Op	24-▲	H	50		Spi‡	If		H	2	1600	Tim. L110DPA	6.16	A	631	15	Ds	101	11	62-3½	12	70-4	Tim	Ro	68	61
Str Do	1¼	91	DR	DR	12-160	Su	51	Lg 13¾	Cla	3	4.06	M	2	1600	Cla. R1253	5.57	A	500	14½	Ds	65½	9	56-3	10	58-3	Cla	Ro	60	62
Zen Ho	1¼	105	DR	LD	12-158	HM	57	None	Own	2	1.98	H	2	1700	Own. 88C	5.57	A	818	15	Ds	123	11	66-4	12	72-4	Own	Ro	33½	63
Zen Ho	1¼	130	DR	LD	12-158	HM	58	None	Own	2	1.98	H	2	1700	Own. 88C	5.57	A	818	15	Ds	123	11	66-4	12	72-4	Own	Ro	39½	65
Zen Ho	1¼	130	DR	LD	12-158	HM	58	None	Own	2	1.98	H	2	1700	Own. 88C	5.57	A	818	15	Ds	123	11	66-4	12	72-4	Own	Ro	41.6	66
Cum		85		DR	12-158▲	Ce	51		Spi‡	2	6.00	H	2		Own. 88C	4.88	A	818	15	Ds	123	11	66-4	12	72-4	Own	Ro	41½	67

Fr—Front.
FT—Flexible-Timken.
Fu—Fuller Mfg. Co.
G—Gasoline.
Gem—Gemmer Mfg. Co.
GH—G. M. Hydra-Matic.
GM—General Motors Corp.
H—Hydraulic.
Her—Hercules Motor Corp.
HM—Hydraulic mechanical.
Ho—Horizontal.
Hol—Holley Carburetor Co.
HS—Hall Scott Motor Div.
I—Valve-in-head.
IC—Intercity Service.
If—Infinite.
Int—International Harvester Co.
L—Valves in side.
LD—Leece-Neville (Alternator), Delco-Remy (Starter).
Lg—Long Mfg. Div.
LN—Leece-Neville Co.
LR—Lipe Rollway Corp.
M—Mechanical.
Op—Optional.
P—Parlor.
R—Rear.
Ro—Ross Gear & Tool Co.
Roc—Rockford Drilling Machine Co.
Spi—Spicer Mfg. Div.
Str—Stromberg Carburetor Div.
Su—Suction.
Sub—Suburban Service.
TD—Twin Disc.
Tim—Timken Detroit Axle Co.
TR—Transverse in rear.
UF—Under floor.
Up—Updraft.
Va—Vacuum.
Var—Various.
VI—Vee type engine with overhead valves.
Wau—Waukesha Motor Co.
Zen—Zenith Carburetor Div.

For Directory of the Manufacturers listed above, see page 338

1952 TRACTORS...

Line Number	TRACTOR MAKE AND MODEL	GENERAL: Wheelbase (In.)	Minimum Turning Radius Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	TREAD (In.): Minimum	TREAD (In.): Maximum	DRAWBAR: Lateral Adjustment (In.)	DRAWBAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width (In.)	OVERALL DIMENSIONS: Height—To Highest Point (In.)	WHEELS: Standard Equipment	WHEELS: STEEL Diam. and Face: Front (In.)	WHEELS: STEEL Diam. and Face: Rear (In.)	WHEELS: TIRE SIZE: Front (In.)	WHEELS: TIRE SIZE: Rear (In.)	HP. RATING: Belt	HP. RATING: Drawbar	Nebraska Test Number	Power Take-off	Number of Forward Speeds	Number of Reverse Speeds	Travel Speeds at Normal Governed Engine R.P.M. (M.P.H.) with Standard Wheels: First	Second	Third
1	Allis-Chalmers 1B	57	7	12	2365	40	52		11	97	52	54	RT			5.00/15	9/24	22.87	19.51		Op	3	1	3.50	5.30	10.8
2	B	73	7½	21	2060	40	52	22	12	110	52	62	RT			4.00/15	9/24	22.87	19.51	302	Op	3	1	2.75	4.25	6.50
3	CA	81	7½	22	3000	52	80	14	14	124	67	76	RT			5.00/15	10/24	26.62	23.55	453	St	4	1	2.00	3.80	4.50
4	G	68	6½	17	1285	36	64	7	13	116	36	55	RT			4.00/12	6/30	10.91	9.59	396		4	1	1.60	2.26	3.57
5	WD	88	8½	28	3975	56	90	8	16	128	74	81	RT			5.50/16	11.00/28	34.63	30.23	440	St	4	1	2.50	3.50	4.75
6	Avery 8F	79	7½	22	2730	52	76	20	15½	115½	63	75½	RT			5.00/15	10/28				Op	4	1	2.40	3.70	5.20
7	Brockway 49D	76	10½	20	3800	48	76	22	16	115	63	62½	RT			5.50/16	11/28	31.75	28.00		St	4	1	2.16	3.34	4.71
8	49G	72½	9½	20	3100	48	76	22	16	110	63	62½	RT			5.50/16	11/28	35.00	32.00		St	4	1	2.20	3.40	4.80
9	Case VA	75	9½	15		44	72½	16	12	102	65	51½	Op	25x4	38x8	6.00/16	10/28			NT	Op	4	1	2.25	3.00	4.00
10	VAC	83	8½	22		44	88	16	15	119	88	56½	Op	21x3½	42x3	5.00/15	9/32			NT	Op	4	1	2.50	3.75	4.25
11	VAI	75	9½	15		44	72	N	12	109	65	51½	RT			6.00/16	9/24			NT	Op	4	1	2.64	4.55	5.82
12	S	66	10			46		18	13	108½	56½	51	Op	25x4	42x8	5.00/15	11/26			NT	Op	4	1	2.50	3.50	5.00
13	SC	82½	Piv			44	80	17	16	133	74½	56	Op	24½x4	48x21½	5.00/15	10/38			367	Op	4	1	2.50	3.50	4.75
14	SI	65	12			40½		N	15½	110	61.9	51½	RT			6.00/16	12.00/24			NT	Op	4	1	2.52	3.57	4.93
15	D	66	10			50		20	13	118	61½	50½	Op	28x5	42x11½	6.00/16	12/26			349	Op	4	1	2.25	3.75	5.25
16	DC	89	Piv			48	84	21	16.8	140	81	56	Op	28x4	48x21½	5.50/16	11/38			340	Op	4	1	2.50	3.75	5.00
17	DI	66	12			52		N	17	111	67.2	51½	RT			6.00/16	13.00/24			NT	Op	4	1	1.90	3.62	5.00
18	LA	82	13			59½		33½	15	140	72½	61½	Op	30x6	48x12	7.50/18	14/30			NT	Op	4	1	2.50	3.33	4.33
19	LAI	82	16½			59½		N	16	131	73½	59	RT			7.50/18	14.00/28			NT	Op	4	1	1.73	3.12	4.13
20	Cockshutt 20	72½	7½	24½	2500	48	76	9½	14½	122	63	76	Op			5.00/15	10/24					4	1	2.31	3.80	4.98
21	30	81½	8½	23	3500	56	84	11	16½	132½	78½	75½	RT			5.00/16	10/38	32.95	28.43	382	Op	8	2	1.65	2.40	2.75
22	40	86½	12½	26	4600	56	84	11½	10	134½	73½	79	Op			6.00/16	12/38	45.59	40.08	442	Op	6	2	1.62	2.75	3.62
23	Corbitt G50	86	8½	20	3450	56	84	23	18	128	74	69½	RT			5.50/16	10/38	36.22	32.24	422	St	4	1	2.50	3.60	5.00
24	K50	86	8½	20	3450	56	84	23	18	128	74	69½	RT			5.50/16	10/38	29.10	25.90		St	4	1	2.50	3.60	5.00
25	D50	86	8½	20	3550	56	84	23	18	128	74	69½	RT			5.50/16	10/38	35.80	31.80		St	4	1	2.50	3.60	5.00
26	Deere, John B	90	8½	24	4052	56	88	26	17½	132½	86½	79½	RT			5.50/16	10/38	28.69	25.50	380	St	6	1	1.50	2.50	3.50
27	A	90	8½	26	4984	56	88	25	17½	134	86½	81½	RT			5.50/16	11/38	39.45	35.30	384	St	6	1	1.50	2.50	3.50
28	AR	75½	13½	21½	5244	54½	58½	27	12½	125½	72½	67	RT	28x6	42¾x10	6.00/16	13/26	39.10	34.88	429	St	6	1	1.25	2.50	3.25
29	AO	75½	13½	21½	5500	54½	58½	27	12½	125½	73½	57½	RT	28x6	42¾x10	6.00/16	13/26	39.10	34.88	429	St	6	1	1.25	2.50	3.25
30	G	91	8½	27	5620	56	84	24½	15½	137	84½	66½	RT	24x5	51½x7	6.00/16	12/38	39.80	36.01	393	St	6	1	2.50	3.60	4.50
31	D	70	14	24	5703	55	55	39½	18	130	70	68½	RT	28x6	46x11½	7.50/18	14/30	44.83	40.61	350	Op	3	1	2.66	3.66	4.66
32	M	70	8½	21	2750	38	52	15½	16	110	51	56	RT			5.00/15	9/24	21.42	19.19	387	St	4	1	1.62	3.12	4.25
33	R	85½	14½	25½	7500	62½	62½	40	15½	147	79½	78½	RT	30x6	54x12	7.50/18	14/34	50.96	45.69	406	Op	5	1	2.13	3.33	4.25
34	AH	96½	16½	32	6468	90	90	21	14	152½	78	97	RT			7.50/20	12/38	39.45	35.30		St	6	1	1.50	2.25	3.50
35	GH	99	16½	33	6940	90	90	21	15	154	78	101½	RT			7.50/20	12/38	39.80	36.01		St	6	1	2.25	3.25	4.25
36	MT	82½	8½	21		48	96	15½	16½	125½	89½	73½	RT			5.00/15	9/34	21.57	18.77		St	4	1	1.62	3.12	4.25
37	MI	62	8			48	82		13½	110	62	56½	RT			5.00/15	9/24	21.42	19.19		St	4	1	1.62	3.12	4.25
38	Earthmaster C	66	7	20	2080	36	54	28	15½	99	51	61	RT			4.00/15	9/24	12.40	10.90		Op	3	1	2.93	4.19	6.70
39	CH	66	7	24½	2080	36	54	28	20	100	51	64	RT			4.00/15	7/30	12.40	10.90		Op	3	1	3.10	4.45	7.10
40	CN	66	7	20	2065	38	58	28	15½	98	46	61	RT			4.00/15	9/24	12.40	10.90		Op	3	1	2.93	4.19	6.70
41	CNH	66	7	24½	2065	38	58	28	20	100	46	64	RT			4.00/15	7/30	12.40	10.90		Op	3	1	3.10	4.45	7.10
42	D	66	9	20	2153	56	84	28	15½	98	71	61	RT			4.00/15	9/24	12.40	10.90		Op	3	1	2.93	4.19	6.70
43	DH	66	9	24½	2153	56	84	28	20	100	71	64	RT			4.00/15	7/30	12.40	10.90		Op	3	1	3.10	4.45	7.10
44	Ferguson TO 30	70	8	20	2480	48	76	17	6½	115	63½	51½	RT			4.19	10/28	30.27	25.24	466	St	4	1	3.32	4.57	6.29
45	Ford 8N	70	8	13	2410	48	76	20	9½	115	64½	54½	RT			4.19	10/28	27.32	23.16	443	St	4	1	2.77	3.56	4.30
46	Friday Tractor 048	79	12	12	3580	57	57	26	15	127	75	55	RT			6.00/16	13/24	46.00	34.63		Op	10	2	1.90	2.80	3.40
47	Gibson SD	46	6	14	910	33	53½	N	13	74	53	45	RT			4.00/12	7/24					3	1	2.00	4.00	7.00
48	E	66	10	21½	1844	47	64	6	14	90	71	60	RT			4.12	8/24	9.00	8.50		Op	3	1	2.00	4.00	7.00
49	H	66	11½	25	3400	47	85	13	15½	123½	79	67	RT			5.00/15	10/38	43.05	38.12	408	St	4	1	2.16	3.37	4.75
50	I	94	12½	25	4000	49	90	13	15½	138½	79½	67	RT			5.50/16	10/38	25.99	24.20	407	St	4	1	2.16	3.37	4.75
51	Inter- C26K	85	8½	25	3100	56	84	11	14½	126	74½	73½	RT			5.50/16	10/38	NT	NT	NT	St	4	1	2.70	3.80	5.30
52	continental DF	85	8½	25	3250	56	84	11	14½	126	74½	86	RT			5.50/16	11/38	NT	NT	NT	St	4	1	2.83	4.09	5.68
53	C26	85	8½	25	3100	56	84	11	14½	126	74½	73½	RT			5.50/16	10/38	31.23	26.75	400	St	4	1	2.70	3.80	5.30
54	DE or D26	85	8½	25	3250	56	84	11	14½	126	74½	86	RT			5.50/16	10/38	30.74	27.60	421	St	4	1	2.48	3.54	4.92
55	I. H. Super C	91		23½	3000	47	89½	18½		132½	90½	85½	RT								N	Op	4	1	2.46	3.91	5.14
56	Farmall Cub	69½		19½	1360	40	46½	22½		96	62½	74½	RT			3.00/12	6/24			386	Op	3	1	1.98	2.96	5.89
57	Farmall Super A	71		21½	2385	40	43	18½		106½	78	81½	RT			4.00/15	9/24			329	Op	4	1	2.32	3.68	4.84
58	Farmall Super AV	71½			2825	48		18½		115	77½		RT							N	Op	4	1	3.05	4.84	6.37
59	Farmall H	100½			4040	44		26		144½	82		Op							333	Op	5	1	2.59	3.53	4.21
60	Farmall HV	91		30½	5035	60	72	30		146½	85½	84½	RT			6.00/20	12/36			N	Op	5	1	2.46	3.35	3.99
61	Farmall M	100			5290	52	88	26		146	84½		Op							328	Op	5	1	2.67	3.81	4.95
62	Farmall MD	102½			5675	52	88	26		147½	84½		Op								Op	5	1	2.67	3.81	4.95
63	Farmall MV	91½		30½	5985	60	72	30		146½	85½	84½	RT			6.00/20	13.36			N	Op	5	1	2.53	3.61	4.69
64	Farmall MDV	93½		30½	6360	60	72	30		148	85½	83½	RT			6.00/20	13/36			N	Op	5	1	2.53	3.61	4.69
65	McC.-W-4	66½		15½	3875	45½	52	18½		114	66½	80½	Op			5.50/16	13/26			353	Op	5	1	2.41	3.28	4.14
66	McC.-O-4	66½		15½	4110	45½	41½	25		120½	60½	57½	RT			5.50/16	13/36			N	Op	5	1	2.41	3.28	4.14
67	McC.-OS-4	66½		15½	3910	45½	41½	25		120½	56½	57½	RT			5.50/16	13/26			N	Op	5	1	2.41	3.28	4.14
68	McC.-W-6	75½		15½	4990	46½	55	18½		125	70½	90½	Op			6.00/16	14/30			355	Op	5	1	2.58	3.68	4.78
69	McC.-WD-6	75½		15½	5410	46½	55	18½		125	70½	89½	Op			6.00/16	14/30				Op	5	1	2.56	3.68	4.78
70	McC.-D-6	76½		15½	5190	45	46½	22½		133½	65	61½	RT			6.00/16	14/26			N	Op	5	1	2.38	3.40	4.42
71	McC.-OS-6	76½		15½	4890	45	46½	22½		133½	61	61½	RT			6.00/16	14/26			N	Op	5	1	2.38	3.40	4.42
72	McC.-ODS-6	76½		15½	5310	45	46½	22½		133½	61	61½	RT			6.00/16	14/26			N	Op	5	1	2.38	3.40	4.42
73	McC.-W-9	83½		15½	6475	60	52	18½		134½	75¾	83	Op			7.50/18	14/34			369	Op	5	1	2.36	3.18	
74	McC.-WD-9	83½		15½	6810	60	52	18½		134½	75¾	81½	Op			7.50/18	14/34			441	Op	5	1	2.36	3.18	4.48
75	McC.-WR-9	83½		15½	6875	51½	66	18½		139½	81	83½	Op	34x6	54x12	7.50/18	15/34			N	Op	5	1	2.51	3.38	4.78
76	McC.-WDR-9	83½		15½	7210	51½	66	18½		139½	81	82¾	Op	34x6	54x12	7.50/18	15/34			N	Op	5	1	2.51	3.38	4.78

For Key to References and Abbreviations See Pages 160 and 161

For Directory of the Manufacturers listed above, see page 338

...WHEEL TYPES

Travel Speeds at Normal Governed Engine R.P.M. with Standard Wheels				ENGINE								FUEL											BELT PULLEY			CAPACITIES							
Fourth	Fifth	Sixth	Reverse	Make and Model	Number of Cylinders—Bore and Stroke (In.)	Piston Disp. (Cu. In.)	R.P.M. at Governed Speed	Valve Arrangement	Number of Main Bearings	Diameter of Main Bearings	Standard	Optional	Ignition—Make	Carburetor or Injector Pump—Make	Air Cleaner—Make	Governor—Make	Oiling System—Type	Cooling System—Type	Clutch—Make and Type	Final Drive—Type	Diameter (In.)	Face (In.)	Normal R.P.M.	Steering Type	Cooling System (Gal.)	Fuel Tank (Gal.)	Crankcase (Qts.)	Transmission (Qts.)	Final Drive Case (Qts.)	Starting Method	Libe Number
			3.10	Own 1B	4-3½x3¼	125	1400	I	3	2¼	G		FM	Zen	Don	Own	P	Pu	Roc SP SG		8	5½	1084	FK	2	13	4	7	4½	Ele	1
			3.00	Own B	4-3½x3¼	125	1400	I	3	2½	G,D		FM	Zen	Don	Own	P	Pu	Roc SP SG		8	5½	1130	FK	2	13	4	6	††¾	Ele	2
11.28			3.50	Own CE	4-3½x3¼	125	1650	I	3	2¼	G	K	DR	Zen	Don	Own	P	Pu	Roc SP SG		8	5½	1220		2	13	4	8½	††½	HE	3
6.91			1.98	Cont. N62	4-2¾x3½	62	1800	L	2	2	G						P	TS	Roc SP		6	4	1950	FK	1½	5	3½	8		Ele	4
9.00			2.00	Own WD	4-4x4	201	1400	I	3	2½	G,D		FM	Zen	Uni	Own	P	Pu	Roc SP SG		9	6½	1280	SA	3½	16	6	17	2	Ele	5
13.00			2.80	He.IXB3SL	4-3¼x4	133	1800	L	3	2	G		DR	Mar	Vor	Novi	P	Pu	Roc SP SG		10	6½	1160	....	2¾	12	5	9	3	HC	6
15.00			1.69	CantGD157	4-3½x4⅝	157	2000	I	3		O		N	Don			P	TS	Roc SP CH		8½	6½	1650	DF	4	12½	6			Ele	7
16.00			1.72	Cont. F162	4-3½x4½	162	2400	I	3		G		AL	Mar	Don		P	TS	Roc SP CH		8½	6¾	1800	DF	4	12½	5	(e)	(e)	Ele	8
8.00			3.00	Own VA	4-3¼x3⅜	124	1425	I	3	2¼	G	D	Own	Mar	Vor	Own	P	Pu	SP SG		10¼	6	969	FK	3½	10	4	28	4⅝	HE	9
9.00			3.50	Own VA	4-3¼x3⅜	124	1425	I	3	2¼	G	D	Own	Mar	Vor	Own	P	Pu	SP SG		10¼	6	969	SA	3½	10	4	28	4⅝	HE	10
14.00			3.64	Own VA	4-3¼x3⅜	124	1425	I	3	2¼	G	D	Own	Mar	Vor	Own	P	Pu	SP SG		10¼	6	969	FK	3½	10	4	28	4⅝	HE	11
10.00			2.75	Own S	4-3½x4	154	1550	I	3	2½	G	D	Own	Zen	Uni	Own	P	Pu	TD DO CH		9½	6½	1078	FK	4	15½	5	36		HE	12
10.00			2.75	Own S	4-3½x4	154	1550	I	3	2½	G	D	Own	Zen	Uni	Own	P	Pu	TD DO CH		9½	6½	1078	SA	4	15½	5	36		HE	13
10.03			2.62	Own S	4-3½x4	154	1550	I	3	2½	G	D	Own	Zen	Uni	Own	P	Pu	Roc MD CH		9½	6½	1078	FK	4	14	5	36		HE	14
10.50			3.00	Own D	4-3¾x5½	259	1200	I	3	2¼	G	D	Own	Zen	Own	Own	P	Pu	TD DO CH		12½	7½	818	FK	7½	18	7	40		HE	15
10.00			2.75	Own D	4-3¾x5½	259	1200	I	3	2¼	G	D	Own	Zen	Own	Own	P	Pu	TD DO CH		12½	7½	818	SA	7½	18	7	40		HE	16
10.20			2.88	Own D	4-3¾x5½	259	1200	I	3	2¼	G	D	Own	Zen	Own	Own	P	Pu	Roc MD CH		12½	7½	818	FK	5⅝	19	7	40		HE	17
10.00			2.75	Own LA	4-4½x6	403	1100	I	3	3	G	D	Own	Zen	Own	Own	P	Pu	TD DO CH		13	8¼	779	FK	15½	31	12	68		HE	18
8.60			2.48	Own LA	4-4½x6	403	1100	I	3	3	G	D	Own	Zen	Own	Own	P	Pu	... MD CH		13	8¼	779	FK	15½	31	12	68		HE	19
12.50			2.86	Cont. F124	4-3x4⅛	123	1800	L	3	2¼	G		AL	Mar	Don	Novi	P	Pu	BB SP SG		10	6½	1160	SF	3	12½	4½	8	††3	Ele	20
3.30	4.00	(d)	(d)	Bu 4B153	4-3½x4½	153	1650	I	3	2½	G	D,O	Zen	M-Z	Don	Novi	P	Pu	BB SP SG		8½	6½	1336	SF	3½	15	5	20		Ele	21
4.50	6.25	10.50	(e)	Bu 6B230	6-3½x4½	229	1650	I	7	2½	G	O	AL	Zen	Don	Novi	P	Pu	BB SP SG		12	8½	1000	SF	4⅝	21	6	39½		Ele	22
10.00			3.20	Le. D-176	4-3⅝x4	176	1800	I	3	(a)	G		DR	Zen	Uni	Le	P	Pu	BB SP SG		8	6½	1450	Piv	3⅝	12	7	23	33	Ele	23
10.00			3.20	Le. D-201	4-4x4	201	1800	I	3	(a)	K	G	DR	Zen	Uni	Le	P	Pu	BB SP SG		8	6½	1450	Piv	3⅝	12	7	23	33	Ele	24
10.00			3.20	He. D1X4D	4-3⅝x4	166	1800	I	5	2⅝	D				Bos	Uni	He	P	Pu	BB SP SG		8	6½	1450	Piv	4	12	6	23	33	Ele	25
4.50	5.75	10.00	2.50	Own	2-4¼x5½	190	1250	I	2	2¼	G	D	Wico	Mar	Don	Own	P	TS	Own MD SG		9½	7¼	1250	WS	7	12	7	18		Ele	26
4.40	6.30	11.00	2.90	Own	2-5¼x6⅝	321	975	I	2	2⅝	G	D	DR	Mar	Don	Own	P	TS	Own MD SG		12½	7¾	975	WS	8⅝	18	11	28		Ele	27
4.38	6.25	11.00	2.75	Own AP	2-5¼x6⅝	321	975	I	2	2⅝	G	D	DR	Mar	Don	Own	P	TS	Own MD SG		12½	7¾	975	WG	8⅝	20	11	32		Ele	28
4.38	6.25	11.00	2.75	Own AO	2-5¼x6⅝	321	975	I	2	2⅝	G	D	DR	Mar	Don	Own	P	TS	Own MD SG		12½	7¾	975	WG	8⅝	20	11	32		Ele	29
6.50	8.75	12.50	3.00	Own G	2-6¼x7	413	975	I	2	3	D	G	Wico	Mar	Don	Own	P	TS	Own MD SG		12½	8½	975	WS	13	17	11	28		Ele	30
			1.75	Own D	2-6¾x7	501	900	I	2	3	D	G	Wico	Mar	Don	Own	P	TS	Own MD CH		13½	8½	900	WG	14	23½	13	28		Ele	31
10.00			1.62	Own M	2-4x4	101	1650	I	2		G		DR	Mar	Don	Own	P	TS	Au SP SG		7¼	6	1575	FK	3½	9	5	6½	1¾	Ele	32
5.33	11.50		2.50	Own R	2-5¾x8	416	1000	I	2	4	O		SS	SS	Don	Own	P	TS	Own MD SG		12½	9	1000	WG	13	22	13	9		Ele	33
4.50	6.50	11.25	3.00	Own A	2-5¼x6⅝	321	975	I	2	2⅝	G	D	DR	Mar	Don	Own	P	TS	Own MD SG		12¾	7⅝	975	WS	8⅝	18	11	28		Ele	34
6.00	8.25	11.75	3.00	Own G	2-6¼x7	413	975	I	2	3	D		DR	Mar	Don	Own	P	TS	Own MD SG		12¾	8½	975	WS	12½	17	11	28		Ele	35
10.00			1.62	Own M	2-4x4	101	1650	I	2	2⅜	G		DR	Mar	Don	Own	P	TS	Au SP SG		7¼	6	1575	FK	3½	9	5	7½	††2	Ele	36
10.00			1.62	Own M	2-4x4	101	1650	I	2	2⅜	G		DR	Mar	Don	Own	P	TS	Au SP SG					FK	3½	9	5	6½	††½	Ele	37
			3.48	Cont. N62	4-2¾x3½	62	1600	L	2	2	G	K	AL	Zen	Vor	Cont	P	TS	Au SP SG		7	5	490	SA	1½	7	4	2½	2	Ele	38
			3.70	Cont. N62	4-2¾x3½	62	1800	L	2	2	G	K	AL	Zen	Vor	Cont	P	TS	Au SP SG		7	5	490	SA	1½	7	4	2½	2	Ele	39
			3.48	Cont. N62	4-2¾x3½	62	1800	L	2	2	G	K	AL	Zen	Vor	Cont	P	TS	Au SP SG		7	5	490	SA	1½	7	4	2½	2	Ele	40
			3.70	Cont. N62	4-2¾x3½	62	1800	L	2	2	G	K	AL	Zen	Vor	Cont	P	TS	Au SP SG		7	5	490	SA	1½	7	4	2½	2	Ele	41
			3.48	Cont. N62	4-2¾x3½	62	1800	L	2	2	G	K	AL	Zen	Vor	Cont	P	TS	Au SP SG		7	5	490	SA	1½	7	4	2½	2	Ele	42
			3.70	Cont. N62	4-2¾x3½	62	1800	L	2	2	G	K	AL	Zen	Vor	Cont	P	TS	Au SP SG		7	5	490	SA	1½	7	4	2½	2	Ele	43
13.13			3.83	Cont Z-129	4-3¼x3⅞	129	2000	I	3	2¼	G		DR	Mar	D-V	Novi	P	Pu	Roc SP SB		9	6½	1358	FK	2½	10	5	24		Ele	44
10.23			4.55	Own 8N	4-3⅛x3⅜	119	(m)	L	3	2.25	G	D	Own	Mar	U-O	Novi	PS	Pu	Lg SP SB		9	6½	1358	DA	3	10	6	20	**	Ele	45
5.10	6.40	9.20	2.60	Chr. Ind5	6-3¼x4⅝	218	1800	L	4	2½	G		AL	Car	Uni	Pio	P	Pu	BB SP Hel		8¼	6½	1025	FK	5	18½	5	6	6	Ele	46
			2.50	Wis. AEH	1-3x3½	23	2000	L	2		G	K	Wico	Zen	Uni		NS	A	V-Belt SB					SA		2¾	1½	1	1	HC	47
			2.50	Wis. TF	2-3¼x3¼	54	2000	L	2	(b)	G	K	AL	Zen	Uni	Wis	NS	A	V-Belt CH							9	3½	1	3	Ele	48
13.74			2.00	He IXB3	1-3¼x4	133	1800	L	3	1⅜	G	K	DR	Mar	Vor	Han	P	Pu	Roc SP SG		9¼	7¼	1487		3½	17	5	21	**	Ele	49
13.74			2.00	He QXD5	6-3¼x4¼	230	1800	L	7	2½	G	K	DR	Mar	Vor	Novi	P	Pu	Roc SP SG		9¼	7¼	1487		4	20	6	21	**	Ele	50
10.70			3.40	Cont. F162	4-3½x4⅝	162	1650	L	3	2¼	K		AL	Mar	Don	Novi	P	Pu	Roc SP SG		10	6½	1350	SA	2¾	15	5	20	10	Ele	51
11.26			3.52	Bu.4BD182	4-3⅝x4¼	182	1800	L	3	2½	O			Budd	Uni	Bos	P	Pu	Roc SP SG		10	6½	1472	SA	2¾	14	5	20	10	Ele	52
10.70			3.40	Cont. F162	4-3½x4⅝	162	1650	L	3	2¼	G		AL	Mar	Don	Novi	P	Pu	Roc SP SG		10	6½	1353	SA	2¾	15	5	20	10	Ele	53
9.75			3.06	Bu.4BD153	4-3½x4½	153	1800	I	3	2½	O			Budd	Uni	Bos	P	Pu	Roc SP SG		10	6½	1472	SA	2¾	14	5	20	10	Ele	54
10.68			3.08	Own	4-3¼x4	122	1815	I	3		G	D					P	Pu	SP SG		8½	6	1363	WG	3½	11	5	19		Ele	55
			2.19	Own	4-2⅝x2¾	59	1800	L	3		G						P	TS	SP SG		9	4½	1322	WG	2½	7½	3	1⅝	††1	HE	56
10.05			2.90	Own	4-3x4	113	1540	I	3		G	D					P	TS	SP SG		8½	6	1157	WG	3½	11	5	4½	††1	Ele	57
13.22			3.81	Own	4-3x4	113	1540	I	3		G	D					P	TS	SP SG		8½	6	1157	WG	3½	11	5	4½	††1	Ele	58
5.30	16.20		3.02	Own	4-3⅝x4½	152	1815	I	3		G	D					P	Pu	SP SG		9¼	7½	1019	WG	4½	17½	6	24		Ele	59
5.03	15.36		2.86	Own	4-3½x4¼	152	1815	I	3		G	D					P	Pu	SP CH		9¼	7½	1019	WG	4½	17½	6	24	††3½	Ele	60
6.80	16.70		2.32	Own	4-3½x5½	247	1595	I	3		G	D					P	Pu	SP SG		11	7½	899	WG	6	21	8	52		Ele	61
6.80	16.70		2.32	Own	4-3½x5½	247	1610	I	5		G						P	Pu	SP SG		11	7½	899	WG	6⅝	20½	9	52		Ele	62
6.45	15.82		3.38	Own	4-3½x5½	247	1595	I	3		G	D					P	Pu	SP CH		11	7½	899	WG	6	21	8	52	††3½	Ele	63
6.45	15.82		3.38	Own	4-3½x5½	247	1610	I	5		G						P	Pu	SP CH		11	7½	899	WG	6⅝	20½	9	52	††3½	Ele	64
5.21	15.04		2.80	Own	4-3⅝x4½	152	1815	I	3		G						P	Pu	SP SG		9¼	7½	1019	WG	4½	17½	6	24		Ele	65
5.21	15.04		2.80	Own	4-3⅝x4½	152	1815	I	3		G						P	Pu	SP SG		9¼	7½	1019	WG	4½	17½	6	24		Ele	66
5.21	15.04		2.80	Own	4-3⅝x4½	152	1815	I	3		G						P	Pu	SP SG		9¼	7½	1019	WG	4½	17½	6	24		Ele	67
6.56	16.15		3.45	Own	4-3½x5½	247	1595	I	3		G						P	Pu	SP SG		11	7½	899	WG	6¼	21	8	52		Ele	68
6.56	16.15		3.45	Own	4-3½x5½	247	1610	I	5		G						P	Pu	SP SG		11	7½	899	WG	6⅝	20½	9	52		Ele	69
6.07	14.91		3.19	Own	4-3½x5½	247	1595	I	3		G	D					P	Pu	SP SG		11	7½	899	WG	6¼	21	8	52		Ele	70
6.07	14.91		3.19	Own	4-3½x5½	247	1595	I	3		G	D					P	Pu	SP SG		11	7½	899	WG	6¼	21	8	52		Ele	71
6.07	14.91		3.19	Own	4-3½x5½	247	1610	I	5		G						P	Pu	SP SG		11	7½	899	WG	6⅝	20½	9	52		Ele	72
				Own	4-4¼x5½	334	1650	I	3		G	D					P	Pu	SP SG		14	8½	707	CL	10	36	11	40		Ele	73
5.48	15.75		2.88	Own	4-4¼x5½	334	1650	I	5		G						P	Pu	SP SG		14	8½	707	CL	11	35	11	40		Ele	74
5.80	16.71		3.06	Own	4-4¼x5½	334	1650	I	3		G	D					P	Pu	SP SG		14	8½	707	CL	10		11	40		Ele	75
5.80	16.71		3.06	Own	4-4¼x5½	334	1665	I	5		G						P	Pu	SP SG		14	8½	707	CL	11	36	11	40		Ele	76

For Key to References and Abbreviations See Pages 160 and 161

For Directory of the Manufacturers listed above, see page 338

1952 MODELS OF TRACTORS . . .

Line Number	TRACTOR MAKE AND MODEL	GENERAL: Wheelbase (In.)	Minimum Turning Radius Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	TREAD (In.): Minimum	TREAD (In.): Maximum	DRAWBAR: Lateral Adjustment (In.)	DRAWBAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width (In.)	OVERALL DIMENSIONS: Height—To Highest Point (In.)	WHEELS: Standard Equipment	WHEELS: STEEL Diam. and Face: Front (In.)	WHEELS: STEEL Diam. and Face: Rear (In.)	WHEELS: TIRE SIZE: Front (In.)	WHEELS: TIRE SIZE: Rear (In.)	HP. RATING: Belt	HP. RATING: Drawbar	Nebraska Test Number	Power Take-off	Number of Forward Speeds	Number of Reverse Speeds	Travel Speeds at Normal Governed Engine R.P.M. (M.P.H.) with Standard Wheels: First	Second	Third
1	Inter-national Super A	71	9½	15⅝	2155	40R	68R	19¾	10	106¾	48	64½	RT			4.00/15	9.00/24	19.06	17.35		St	4	1	2.30	3.60	4.70
2	I-4 Std.	66½	10	12¼	3870	46½	R			107⅝	112½	57⅞	81	RT			5.50/16	12.00/24	27.50	25.00		Op	5	1	2.20	3.60	5.20
3	I-6 Std.	76	11⅝	11½	4925	50R				101¼	123½	61⅞	91⅝	RT			6.00/16	13.00/24	38.50	34.00		Op	5	1	2.20	3.60	5.30
4	ID-6 Std.	76	11⅝	11½	5145	50R				101¼	123½	61⅞	89½	RT			6.00/16	13.00/24	39.00	34.50		Op	5	1	2.20	3.60	5.30
5	I-9 Std.	83⅝	14	13¼	6485	50½	R			121⅛	131½	67½	82½	RT			7.50/18	13.00/32	52.00	47.00		Op	5	1	2.30	3.10	5.30
6	ID-9 Std.	83⅝	14	13¼	6800	50½	R			121⅛	131½	67½	82½	RT			7.50/18	13.00/32	53.00	48.00		Op	5	1	2.30	3.10	5.30
7	Lincoln A	41	8¾	9		34	34	12	12	66	42	42	RT			4.00/12	7.50/18			N	St	3	1	1.00	3.00	6.00
8	Lowther HP	91½	9	25	4136	56	84	20	15	138⅞	73½	80	RT			6.00/16	11/38	42.8	37.5		St	5	1	2.03	3.51	5.04
9	ER	91½	9	25	4436	56	84	20	15	139¼	73½	80	RT			6.00/16	12/38	48.6	42.3		St	5	1	2.06	3.57	5.13
10	EW	91½	13	17	4896	66½	78½	20	15	137½	79¾	78	RT			6.00/16	13/30	48.6	42.3		St	5	1	1.73	3.00	4.31
11	HW	91½	13	17	4296	66½	78½	20	15	134½	79¾	78	RT			6.00/16	12/30	42.8	37.5		St	5	1	1.63	3.17	4.98
12	Massey-Harris Pony	66		21	1520	41	72		15		49	60	RT			4.00/15	9/24	10.34	8.31	401	Op	3	1	2.74	3.59	7.08
13	Std. 22	75½	10	11½	2930	47	48	18¼	24½	123¼	56¼	70¾	RT			5.00/15	10/34	31.59	23.91	403	Op	4	1	2.79	3.98	5.24
14	RC-22	82½	7¼	12⅝	2770	48	88	18¼	24½	125	81¼	76	RT			4.00/15	10/34	24.00	18.00	403	Op	4	1	2.79	3.98	5.24
15	Std. 30	79½	10½	9½	3385	52⅛	52⅛	21⅞	22½	125	64	73	RT	28x4½	44x10	5.00/15	11/28	35.28	27.23	409	Op	5	1	2.19	3.06	3.82
16	RC-30	81⅝	8½	13⅝	3520	51¼	88⅝	21⅞	26½	127	79	79	RT		50x14½	5.00/15	10/38	27.50	22.00	409	Op	5	1	2.58	3.61	4.51
17	Std. 44	79½	11	12	4650	54⅛	54⅛	21⅞	25½	129	66⅞	76½	RT	28x4½	48x12	6.00/16	13/30	47.04	41.38	389	Op	5	1	2.21	3.33	4.43
18	RC-44	87½	9	16¼	5075	51¼	88⅝	21⅞	27½	137	79	82	RT	22x4	54x14½	5.50/16	12/38	39.45	36.85	389	Op	5	1	2.48	3.75	4.82
19	RC-44D	87½	9	16¼	5075	51¼	88⅝	21⅞	27½	137	79	82	RT	22x4	54x14½	5.50/16	12/38	43.04	39.48	426	Op	5	1	2.40	3.63	4.82
20	RC-44-E	88⅛	9	16¼	3850	51¼	88⅝	21⅞	27½	137	79	82	RT			5.50/16	12/38	36.90	25.90		Op	5	1	2.67	3.72	4.66
21	55	88½	12	12½	6725	57⅛	57⅛	23½	29⅛	145⅛	72½	83¼	RT	30x5½	54x12	7.50/18	14/34	58.20	50.45	455	Op	4	1	2.66	4.22	5.22
22	55D	88½	12	12½	6830	57⅛	57⅛	23½	29⅛	145⅛	72½	83¼	RT	30x5½	54x12	7.50/18	14/34	60.27	54.49	452	Op	4	1	2.96	4.22	5.22
23	Mercer 30-BD	87	8	23	3450	56	84	18	12	132	75	60	RT			5.50/16	11/38	30.0	27.0	N	St	4	1	2.70	4.20	5.90
24	35-BD	87	8	23	3650	56	84	18	12	132	75	60	RT			5.50/16	11/38	35.0	31.0	N	St	4	1	2.70	4.20	5.90
25	M-M R Type U	78	8	22⅜	3110	8F	88	17	14¼	116	81⅛	68½	RT			5.00/15	10/34	23.71	18.00	468	Op	4	1	2.60	3.60	4.70
26	R Type S	69	10	11	3110	47⅛	F	17	14¼	108½	81⅛	68½	RT			5.00/15	10/34	23.71	18.00	NT	Op	4	1	2.60	3.60	4.70
27	R Type N	76⅝	7½	23⅝	3110	52	96	17	15½	115⅝	89⅛	69½	RT			6.00/12	9/38	23.71	18.00	NT	Op	4	1	2.70	3.70	4.90
28	R Type E	84½		22⅝	3300	52	88	17	14¼	124	81⅛	68½	RT			5.00/15	10/34	23.71	18.00	NT	Op	4	1	2.60	3.60	4.70
29	Industrial R	66½	12	11½	3650	47⅛	F	N	16	104	59	63½	RT			7.50/16	12.00/24	22.00	17.00	NT	Op	4	1	2.20	3.20	4.10
30	U Type U	88	8½	25	5300	9F	84½	22	15	137	83	69	RT			6.00/16	12/38	38.48	28.32	319	Op	5	1	2.70	3.80	4.40
31	U Type S	80	12	15	5300	50½	F	62½	22	15	130⅝	70	72	RT			6.00/16	12/38	38.12	30.98	310	Op	5	1	2.70	3.80	4.40
32	U Type E	96		20	5500	54½		84½	22	15	145	83	70	RT			6.00/16	12/38	38.48	28.32	NT	Op	5	1	2.70	3.80	4.40
33	U Type N	88	8½	25	5300	54½		84½	22	15	137	83	73	RT			9.00/10	12/38	38.48	28.32	NT	Op	5	1	2.70	3.80	4.40
34	C	82½	14	14	6400	54½	F	62R	25	141¼	135½	80	71	RT			7.50/18	14/34	50.58	38.90	437	Op	5	1	2.50	3.50	4.10
35	Z Type U	82	8	25	3700	73⅛	F	88	11½	132½	83	78	RT			5.50/16	11/38	31.86	25.02	438	Op	5	1	2.40	3.60	4.60
36	Z Type S	72½	12	12¼	3750	48F		54	11½	13½	120	71	69	RT			5.50/16	11/38	31.86	25.02	NT	Op	5	1	2.40	3.60	4.60
37	Z Type N	82½	8	25	3700			96	11½	13½	131½	91	78	RT			7.50/10	11/38	31.86	25.02	NT	Op	5	1	2.40	3.60	4.60
38	Z Type E	90¾		20	3900	54	88	11¼	13½	141	83	78	RT			5.50/16	11/38	31.86	25.02	NT	Op	5	1	2.40	3.60	4.60
39	Industrial UTIL	87½	17	15½	7400	56F	54½	N	21½	134⅛	77	73½	RT			8.25/20	14.00-28	38.12	30.86	NT	Op	5	**	2.60	3.70	4.13
40	Industrial UTI	79½	16	15	7100	56F	54½	N	21½	126	77	73½	RT			8.25/20	14.00-28	38.48	28.32	NT	Op	5	1	2.60	3.70	4.13
41	Oliver Rowcrop 66HC	86½	8⅝	18½	2548	60	88	20½	17	134⅞	80¼	73¼	•RT		55x14	5.00/15	9/38	26.05	22.30	412	Op	6	2	2.46	3.25	4.25
42	Standard 66HC	73⅝	10	11⅝	2492	50¾	58¾	20½	13½	123⅞	61¼	66¼	•RT			5.00/15	10/24	26.21	22.61	413	Op	6	2	2.50	3.30	4.32
43	66 Ind.	73⅝	10	11⅝	2462	50¾	58¾	20½	13½	123⅞	61¼	66¼	•RT			6.00/16	10/24			NT	Op	6	2	1.88	2.48	3.25
44	Rowcrop 77HC	90½	9¼	18¼	3623	60	92½	20¾	15½	139¼	80¼	75•	RT		55x14	5.50/16	11/38	38.82	34.20	425	Op	6	2	2.45	3.22	4.27
45	Standard 77HC	78½	10¾	12⅞	3464		52½	20¾	12¾	129¾	65¼	69½	•RT			5.50/16	12/26	38.82	34.20	425	Op	6	2	2.48	3.27	4.33
46	77 Ind.	85½	15¾	12⅛	4550	52½	69½	20¾	11½	137½	73¾	70•	RT			7.00/20	12.00-24			NT	Op	6	2	1.95	2.50	3.44
47	90	80	14	10½	6200	53	53	18½	15	132¾	68¾	67¾	•RT	29x6	46x12	7.50/18	14/30	49.04	34.21	183	Op	4	2	2.23	3.32	4.32
48	99	80	14	10½	6400	53	53	18½	15	132¾	68¾	67¾	•RT	29x6	46x12	7.50/18	14/30	63.87	54.57	451	Op	4	1	2.23	3.32	4.32
49	900 Ind.	92½	15	12½	10400	49¼	82¼	30	15⅛	145	96	72•	RT			7.00/20	14.00-32	63.00	50.00			4	1	2.82	5.48	9.03
50	Standard 88HC	79½	11	13	4392	54	62	20½	15	133½	68½	68⅛	RT		44x10	6.00/16	13/26	44.96	38.56	391	Op	6	2	2.48	3.22	4.27
51	Rowcrop 88HC	93½	9¼	18½	4586	60	92½	20¾	13⅞	143½	80¼	75	RT		55x14	6.00/16	12/38	44.66	38.40	388	Op	6	2	2.46	3.22	4.28
52	88 Ind.	86½	15½	12⅛	4866	54	71	20½	14	139½	81½	70¾•	RT			7.00/20	13.00-24			NT	Op	6	2	2.00	2.58	3.44
53	Rowcrop 88D	93½	9¼	18½	4813	60	92½	20¾	13⅞	143½	80¼	75•	RT		55x14	6.00/16	12/38	45.15	39.07	450	Op	6	2	2.49	3.22	4.28
54	Standard 88D	79½	11	13	4607	54	62	20½	15	133½	68½	69¼•	RT		44x10	6.00/16	13/36	45.15	39.07	450	Op	6	2	2.48	3.22	4.27
55	Ind. 88D	86½	15½	12⅛	5009	54	71	20½	14	139½	81½	70¾•	RT			7.00/20	13/24			NT	Op	6	2	2.00	2.58	3.44
56	Rowcrop 77D	90½	9½	18⅛	3811	60	92½	20¾	15½	139½	80¼	75	RT		55x14	5.50/16	11/38			NT	Op	6	2	2.45	3.22	4.27
57	Standard 77D	78½	10¾	12⅞	3852	52½	52½	20¾	12¾	129¾	65¼	69½•	RT			5.50/16	12/26			NT	Op	6	2	2.48	3.27	4.33
58	Ind. 77D	85½	15½	12⅛	4738	52½	62½	20¾	11¼	137½	81½	70•	RT			7.00/20	12/24			NT	Op	6	2	1.95	2.59	3.44
59	Rowcrop 66D	86½	8¾	18⅛	2675	60	88	20½	17	134⅛	80¼	73¼•				5.00/15	8/38	26.39	23.14	467	Op	6	2	2.50	3.30	4.32
60	Standard 66D	73⅝	10	11⅝	2616	50¾	58¾	20½	13½	123¼	61¼	67¼•	RT			5.00/15	10/24	26.39	23.14	467	Op	6	2	2.50	3.30	4.32
61	Ind. 66D	73⅝	10	11⅝	2586	50¾	58¾	20½	13½	123¼	61¼	67¼•	RT			6.00/16	10/24			NT	Op	6	2	1.88	2.48	3.25
62	Sheppard SD2	85	7½	25	4525	56	84	Ad	Ad	125	††	78¼	RT			6.00/16	11/38			NT	Op	6	2	1.85	2.67	3.14
63	SD3	92	8	25	4750	56	84	Ad	Ad	131	††	70¾	RT			6.00/16	11/38			NT	Op	8	2	1.85	2.67	3.14
64	SDHI2	85	13½		5160	64		Ad	Ad	125	78¾		RT			8.25/20	13.00-26			NT	Op	8	2	1.50	2.20	2.60
65	SDHI3	92	13½		5350	64		Ad	Ad	131	78¾		RT			8.25/20	13.00-26			NT	Op	8	2	1.50	2.20	2.60
66	SDO 3	92	13	20½	5350	56	88	Ad	13⅛	143	74	57⅞	RT			6.00/16	13.00/26			NT	Op	8	2	1.55	2.24	2.63
67	Silver 3WH Std	83⅝	7	29	3350	56	84	27	14	131	72½	78	RT			7.50/16	10.00/38	34.53	29.80	424	Op	4	1	2.67	4.10	5.93
68	King 4WH RC	66⅛	9	16½	3000	44	72	27	15	113⅝	67½	73	RT			6.50/16	10.00/28			NT	Op	4	1	3.25	5.19	7.20
69	Tiger PTD 5	46	8	13	518	26	40	N	13	84	26	35	RT			4.00/8	5.00/12	8.10	4.50		St	1	1	8.00		

ABBREVIATIONS

♦—Total capacity, final drive cases.
‡—Clearance at front axle.
††—Capacity final drive, each case.
*—Minimum.
■—Rated using gasoline.
^—At top of hood.
**—Included in transmission.
***—With reversing transmission and 6 reverse speeds, from a low reverse of 1.5 and 5 other reverse speeds from 2 to 10.9 M.P.H.
•—To top of steering wheel.

♦—2.60 in low reverse, 4.50 in high reverse.
*—1.96 in low reverse, 3.38 in high reverse.
††—74½ in. to 98 in.
*—6.27 in 6th, 7.33 in 7th, road speed in 8th.
**—5.20 in 6th, 6.10 in 7th, 10.50 in 8th. 1.98 in low reverse, 2.28 in high reverse.
**—5.24 in 6th, 6.15 in 7th, road speed in 8th, 1.98 in low reverse, 3.28 in high reverse.
(a)—2⅞, 2¾, 2½. (b)—Roller bearing.
(c)—Transmission and final drive takes 4 gals.
(d)—6th, 5.50; 7th, 6.50; 8th, 12.00; reverse 2.10 and 2nd speed 3.50.
(e)—Reverse 2.12 and 2nd speed 5.00.
(h)—3 in. rear, front S.A.E. 212 roller, center 2.75.

A—Air.
AC—A.C. Spark Plug Co.
Ad—Adjustable.
AL—Electric Auto-Lite Co.
Au—Auburn Clutch Co.
BB—Borg & Beck Div.
Bos—American Bosch Corp.
Br—Briggs & Stratton Corp.
BS—Bendix-Scintilla Magneto Div.
Bu—Buda.
Car—Carter Carburetor Corp.
CH—Chain.
Chr—Chrysler Corp.
CL—Cam and Lever.
Cont—Continental Motors Corp.
D—Distillate.
DA—Divided Axle.
DF—Divided Axle and Front Axle Knuckle.
DO—Double plate operating in oil.
Don—Donaldson Co.

For Directory of the Manufacturers listed above, see page 338

. . . WHEEL TYPE—*concluded*

Travel Speeds at Normal Governed Engine R.P.M. with Standard Wheels				ENGINE							FUEL									BELT PULLEY				CAPACITIES							
Fourth	Fifth	Sixth	Reverse	Make and Model	Number of Cylinders Bore and Stroke (In.)	Piston Disp. (Cu. In.)	R.P.M. at Governed Speed	Valve Arrangement	Number of Main Bearings	Diameter of Main Bearings	Standard	Optional	Ignition—Make	Carburetor or Injector Pump—Make	Air Cleaner—Make	Governor—Make	Oiling System—Type	Cooling System—Type	Clutch—Make and Type	Final Drive—Type	Diameter (In.)	Face (In.)	Normal R.P.M.	Steering Type	Cooling System (Gal.)	Fuel Tank (Gal.)	Crankcase (Qts.)	Transmission (Qts.)	Final Drive Case (Qts.)	Starting Method	Line Number
9.80			2.80	Own...2A	4-3x4	113	1400	I	3	2½	G	K,D	Own	W8-2	Den	Own	P	TS	Roc...SP	SQ	8½	6	1157	FK	3¼	11	5	5	††½	Ele	1
7.40	15.80		3.00	Own....4	4-3½x4¼	152	1650	I	3	2½	G	K,D	Own	Own	Den	Own	P	Pu	Roc...SP	SQ	9¾	7½	1019	FK	4¼	17½	6	24	**	Ele	2
7.40	14.30		2.68	Own....6	4-3½x5½	248	1450	I	3	2¾	G	K,D	Own	Own	Den	Own	P	Pu	Roc...SP	SQ	11	7½	899	FK	6¼	21	8	52	**	Ele	3
7.40	14.30		2.60	Own...D-6	4-3½x5½	248	1450	I	5	3⅜	O		Own	Own	Den	Own	P	Pu	Roc...SP	SQ	11	7½	899	FK	6¾	20½	9	52	**	HE	4
7.30	15.20		2.80	Own....9	4-4½x5½	335	1500	I	3	3¼	G	K,D	Own	Own	Den	Own	P	Pu	Own...SP	SQ	14	8½	707	FK	10	36	11	40	**	Ele	5
7.30	15.20		2.80	Own...D-9	4-4½x5½	335	1500	I	5	4½	O		Own	Own	Den	Own	P	Pu	Own...SP	SQ	14	8½	707	FK	11	35	11	40	**	HE	6
			1.00	Wis...AEF	1-3½x3		2100	L	2		G			Hol	AC		S	N	Own...				1800	FK	Air	3	2	1	2	HC	7
8.97	15.37		2.06	Chr...Ind8A	6-3½x4½	230	1500	L	4	2½	G		AL	Car	Ver	Pie	P	Pu	BB...SP	IQ	11	7½	1011	T	4	18	5	5	5	Ele	8
9.11	15.64		2.08	Chr...Ind8A	6-3½x4½	250	1500	L	4	2½	G		AL	Car	Ver	Pie	P	Pu	BB...SP	IQ	11	7½	1011	T	4	18	5	5	5	Ele	9
7.66	13.15		1.75	Chr...Ind8A	6-3½x4½	250	1500	L	4	2½	G		AL	Car	Ver	Pie	P	Pu	BB...SP	IQ	11	7½	1011	FK	4	18	5	5	5	Ele	10
8.09	13.90		1.85	Chr...Ind8A	6-3½x4½	250	1500	L	4	2½	G		AL	Car	Ver	Pie	P	Pu	BB...SP	IQ	11	7½	1011	FK	4	18	5	5	5	Ele	11
			3.22	Cont...N82	4-2⅝x3½	82	1800				G		AL	Mar	Don		P	TS	Roc...SP	SQ	6	5¼	1990	FK	1½	7	3.3	3		Ele	12
14.80			2.79	Cont...F140	4-3½x4¼	140	1500	L	3	2½	G	D	AL	Mar	Don	Novi	P	Pu	BB...SP	SQ	9½	6¼	1224	FK	12	13	4	8		Ele	13
14.80			2.79	Cont...F140	4-3½x4¼	140	1500	L	3	2½	G	D	AL	Mar	Don	Novi	P	Pu	BB...SP	SQ	9½	6¼	1224	SA	12	13	4	8		Ele	14
5.35	10.71		2.48	Cont...F162	4-3½x4½	162	1500	L	3	2½	G	D	AL	Mar	Don	Novi	P	Pu	BB...SP	SQ	13½	6½	838	FK	11	19	4	48	**	Ele	15
6.31	12.63		2.93	Cont...F162	4-3½x4½	162	1500	L	3	2½	G	D	AL	Mar	Don	Novi	P	Pu	BB...SP	SQ	13½	6½	838	SA	11	19	4	52	**	Ele	16
5.75	12.28		2.89	Own H260	4-3½x5½	260	1350	I	3	2½	G	D	AL	Zen	Don	Own	P	Pu	BB...SP	SQ	13½	6½	863	FK	22	19	7	52	**	Ele	17
5.75	12.28		3.26	Own H260	4-3½x5½	260	1350	I	3	2½	G	D	AL	Zen	Don	Own	P	Pu	BB...SP	SQ	13½	6½	863	SA	23	23	7	52	**	Ele	18
6.27	13.37		2.89	OwnHD260	4-3½x5½	260	1350	I	3	2½	O			Bos	Don	Bos	P	Pu	BB...SP	SQ	13½	6½	863	SA	23	23	7	52	**	Ele	19
6.27	13.37		3.16	Cont...F226	6-3½x4½	226	1500	L	4	2½	G		AL	Mar	Don	Novi	P	Pu	BB...SP	SQ	13½	6½	838	SA	4	23	5	52	**	Ele	20
12.07			2.54	Own J382	4-4½x6	382	1350	I	3	3½	G	D	AL	Zen	Don	Own	P	Pu	BB...SP	SQ	16	8½	730	FK	7	27½	9	68	**	Ele	21
12.07			2.54	Own JD382	4-4½x6	382	1350	I	3	3½	O			Bos	Don	Bos	P	Pu	BB...SP	SQ	16	8½	730	FK	7	27½	9	68	**	Ele	22
11.90			3.50	Su.4BD153	4-3½x4½	153	1000	I	3	2½	O	N	N	Bos	Don	Bos	P	Pu	BB...SP		8¼	6¼	1458	SA	3½	15	5	20	**	Ele	23
11.90			3.50	Su.4BD182	4-3½x4½	182	1800	I	3	2½	O	N	N	Bos	Don	Bos	P	Pu	BB...SP		8¼	6¼	1458	SA	3½	15	5	20	**	Ele	24
13.20			2.90	Own...EE	4-3½x4	165	1500	Ih	2	3	G	D	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	12¼	6	1000	SA	3½	14	7	18	**	HE	25
13.20			2.90	Own...EE	4-3½x4	165	1500	Ih	2	3	G	D	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	12¼	6	1000	FK	3½	14	7	18	**	HE	26
13.70			3.00	Own...EE	4-3½x4	165	1500	Ih	2	3	G	D	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	12¼	6	1000	FO	3½	14	7	18	**	HE	27
13.20			2.90	Own...EE	4-3½x4	165	1500	Ih	2	3	G	D	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	12¼	6	1000	FK	3¾	14	7	18	**	HE	28
11.50			2.50	Own...EE	4-3½x4	165	1500	Ih	2	3	G	D	DR	Mar	Uni	Own	P	Pu	Roc...SP	SQ	12¼	6	1000	FK	3¾	14	7	18	**	HE	29
6.40	14.80		2.10	Own 283A4	4-4¼x5	283	1275	I	3	2⅜	G	D,LP	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	16	7	727	SA	6	21½	9	52	**	HE	30
6.40	14.80		2.10	Own 283A4	4-4¼x5	283	1275	I	3	2⅜	G	D,LP	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	16	7	727	FK	6	21½	9	52	**	HE	31
6.40	14.80		2.10	Own 283A4	4-4¼x5	283	1275	I	3	2⅜	G	D,LP	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	16	7	727	FK	6	21½	9	52		HE	32
6.43	14.10		2.10	Own 283A1	4-4¼x5	283	1275	I	3	2⅜	G	D,LP	DR	Mar	Uni	Own	P	Pu	TD...SP	SQ	16	7	727	FO	6	21½	9	52		HE	33
6.00	13.60		2.00	Own 403A4	4-4½x6	403	1100	I	3	2⅜	G	D,LP	DR	Mar	Don	Own	P	Pu	TD...SP	SQ	16	7	627	FK	12	29	9	52	**	HE	34
6.30	13.10		2.20	Own 206B4	4-3½x5	206	1500	Ih	3	(h)	G	D,LP	DR	Mar	Don	Own	P	Pu	TD...SP	SQ	15½	7	786	SA	3¾	19	7	28	**	HE	35
6.30	13.10		2.20	Own 206B4	4-3½x5	206	1500	Ih	3	(h)	G	D,LP	DR	Mar	Don	Own	P	Pu	TD...SP	SQ	15½	7	786	FK	3¾	19	7	28	**	HE	36
6.30	13.10		2.20	Own 206B4	4-3½x5	206	1500	Ih	3	(h)	G	D,LP	DR	Mar	Don	Own	P	Pu	TD...SP	SQ	15½	7	786	FO	3¾	19	7	28	**	HE	37
6.30	13.10		2.20	Own 206B4	4-3½x5	206	1500	Ih	3	(h)	G	D,LP	DR	Mar	Don	Own	P	Pu	TD...SP	SQ	15½	7	786	FK	3¾	19	7	28	**	HE	38
6.30	14.50		1.80	Own 283A4	4-4¼x5	283	1300	I	3	2⅜	G	D	DR	Mar	Uni	Own	P	Pu	Roc...SP	SQ	16	7	741	FK	6	21½	9	52	**	HE	39
6.30	14.50		1.80	Own 283A4	4-4¼x5	283	1300	I	3	2⅜	G	D	DR	Mar	Uni	Own	P	Pu	Roc...SP	SQ	16	7	741	FK	6	21½	9	52	**	HE	40
5.60	6.61	11.42	2.56	Own	4-3½x3⅜	129	1600	I	3	2⅛	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	987	SA	3	10	4	18	**	Ele	41
5.70	6.72	11.60	2.60	Own	4-3½x3⅜	129	1600	I	3	2⅛	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	987	FK	3	10	4	18	**	Ele	42
4.28	6.46	14.80	1.96	Own	4-3½x3⅜	129	1600	I	3	2⅛	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	987	SA	3	10	4	18	**	Ele	43
5.62	6.58	11.47	2.58	Own	6-3½x3⅜	194	1600	I	4	2⅛	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	992	SA	4½	16½	5	18	**	Ele	44
5.70	6.68	11.65	2.61	Own	6-3½x3⅜	194	1600	I	4	2⅛	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	16½	5	18	**	Ele	45
4.52	9.06	15.80	2.08	Own	6-3½x3⅜	194	1600	I	4	2⅛	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	16½	5	18	**	Ele	46
5.55			3.23	Own	4-4⅝x6½	443	1125	I	3	3	D,O	G		DR	Mar	Don	Own	P	Pu	BB...SP	SQ	16¾	8¼	596	FK	10½	34	12	48	**	Ele	47
5.55			3.23	Own	4-4⅝x6½	443	1125	I	3	3	G			DR	Mar	Don	Own	P	Pu	BB...SP	SQ	16¾	8¼	596	FK	10½	34	12	48	**	Ele	48
7.95			4.11	Own	4-4⅝x6½	443	1200	I	3	3	G			DR	Mar	Don	Own	P	Pu	Roc...SP	SQ				FK	10½	40	12	48	**	Ele	49
5.53	6.80	11.70	2.54	Own	6-3½x4	231	1600	I	4	2⅝	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	20	6	18	**	Ele	50
5.55	6.82	11.75	2.55	Own	6-3½x4	231	1600	I	4	2⅝	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	992	SA	4½	20	6	18	**	Ele	51
5.46	9.27	15.95	2.05	Own	6-3½x4	231	1600	I	4	2⅝	G			DR	Mar	Don	Own	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	20	6	18	**	Ele	52
5.55	6.82	11.75	4.38	Own	88	6-3½x4	231	1600	I	4	2⅝	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	992	SA	4½	19	6	18	**	Ele	53
5.53	6.80	11.75	4.36	Own	88	6-3½x4	231	1600	I	4	2⅝	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	19	6	18	**	Ele	54
4.46	9.27	15.95	3.53	Own	88	6-3½x4	231	1600	I	4	2⅝	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	19	6	18	**	Ele	55
5.62	6.58	11.47	4.52	Own	77	6-3½x3⅜	194	1600	I	4	2⅛	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	992	SA	4½	16½	5	18	**	Ele	56
5.70	6.68	11.65	4.57	Own	77	6-3½x3⅜	194	1600	I	4	2⅛	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	16½	5	18	**	Ele	57
4.52	9.06	15.80	3.57	Own	77	6-3½x3⅜	194	1600	I	4	2⅛	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	992	FK	4½	16½	5	18	**	Ele	58
5.70	6.72	11.60	?	Own	66	4-3½x3⅜	129	1600	I	3	2¼	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	987	SA	3	10	4	18	**	Ele	59
5.70	6.72	11.60	?	Own	66	4-3½x3⅜	129	1600	I	3	2¼	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	987	FK	3	10	4	18	**	Ele	60
4.29	6.46	14.60	"	Own	66	4-3½x3⅜	129	1600	I	3	2¼	O			Bos	Don	Bos	PS	Pu	BB...SP	SQ	11¾	7¼	987	FK	3	10	4	18	**	Ele	61
3.72	4.53	"	3.91	Own	13E	2-4¼x5	142	1650	I	3	2⅝	O		N	Own	Don	Own	P	Pu	Roc...SP	SQ	8¼	7½	1650	SA	7	15	15	25	**	Ele	62
3.72	4.53	"	3.91	Own	6E	3-4¼x5	213	1650	I	4	2⅝	O		N	Own	Don	Own	P	Pu	Roc...SP	SQ	8¼	7½	1650	SA	7½	15	16	25	**	Ele	63
3.10	3.80	""	""	Own	13E	2-4¼x5	142	1650	I	3	2⅝	O		N	Own	Don	Own	P	Pu	Roc...SP	SQ	8¼	7½	1350	FK	7	15	15	25	**	Ele	64
3.10	3.80	""	""	Own	6E	3-4¼x5	213	1650	I	4	2⅝			N	Own	Don	Own	P	Pu	Roc...SP	SQ	8¼	7½	1350	FK	7½	15	16	25	**	Ele	65
3.12	3.80	""	""	Own	6E	3-4¼x5	213	1650	I	4	2⅝	O		N	Own	Don	Own	P	Pu	Roc...SP	SQ	8¼	7½	1350	SA	7½	15	16	25	**	Ele	66
19.10			1.97	Cont	F162	4-3½x4½	162	1800	L	3	2¼	G		DR	Mar	Don	Pie	P	Pu	BB...SP	SQ	6⅛	6	1800	FO	3	11¾	6	7	††½	Ele	67
23.20			2.39	Cont	F162	4-3½x4½	162	1800	L	3	2¼	G		DR	Mar	Don	Pie	P	Pu	BB...SP	SQ	6⅛	6	1800	FK	3	11¾	6	7	††½	Ele	68
			8.00	Br	1#	1 2⅝x2¾	14	3200	L			G			Br	Br	Uni	Br	PS	A	TD	MD	SGC			SA		1	½	1	1	HC	69

DR—Delco-Remy Div.
D-V—Donaldson or Vortex.
Ele—Electric starting.
F—Front wheel tread.
FK—Front axle knuckle.
FM—Fairbanks Morse & Co.
FO—Fork type.
G—Gasoline.
Han—Handy Governor Corp.
HC—Hand crank.
He—Hercules Motor Corp.
HE—Hand or Electric.
Hel—Helical gear.
Hol—Holley Carburetor Co.

I—In head (Valves).
Ig—Internal gear.
Ih—Horizontal—In head (Valves).
K—Kerosene.
L—"L" head (Valves).
Le—Le Roi Co.
LP—Liquid petroleum gas.
Mar—Marvel-Schebler Carburetor Div.
MD—Multiple disc, operating dry.
MS-Z—Marvel-Schebler or Zenith.
M-Z—Marvel or Zenith.
N—No or none.
Novi—Nori Equipment Co.
NS—Non-circulating splash.

NT—Not tested.
O—Diesel fuel.
Op—Optional.
P—Pressure.
Pie—Pierce Governor Co.
Piv—Pivot.
PS—Pressure and splash.
Pu—Pump.
R—Rear wheel tread.
Roc—Rockford Drilling Machine Div.
RT—Rubber tires.
S—Splash. SA—Solid axle.
SB—Spiral bevel gear.
SF—Solid Axle or Front Axle Knuckle.

SG—Spur gear.
SGC—Spur gear and chain.
SP—Single plate, dry.
St—Standard.
T—Tricycle type.
TD—Twin Disc Clutch Co.
TS—Thermo-syphon.
Uni—United Air Cleaner Div.
Vor—Vortex Mfg. Co.
Wico—Wico Electric Co.
WG—Worm gear.
Wis—Wisconsin Motor Corp.
WS—Worm and sector.
Zen—Zenith Carburetor Div.

For Directory of the Manufacturers listed above, see page 338

1952 TRACTORS . . . TRACK-

Line Number	TRACTOR MAKE AND MODEL	GENERAL: Minimum Turning Radius—Outside (FL) (Minimum Tread)	GENERAL: Ground Clearance (In.)	GENERAL: Shipping Weight (Lb.) Standard Shoe (Minimum Tread)	GENERAL: Tread—Minimum (In.)	GENERAL: Tread—Maximum (In.)	DRAWBAR: Lateral Adjustment—At Pin (In.)	DRAWBAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width—Maximum (In.) (Minimum Tread)	OVERALL DIMENSIONS: Height to Highest Point (In.)	TRACK: Width of Shoe—Standard (In.)	TRACK: Length on Ground (In.)	HP. RATING: Belt	HP. RATING: Drawbar	Power Take-off	No. of Forward Speeds	No. of Reverse Speeds	MAXIMUM DRAWBAR PULL AT NORMAL GOVERNED ENGINE R.P.M.: First Gear (Lb.)	Second Gear (Lb.)	Third Gear (Lb.)	Fourth Gear (Lb.)	Fifth Gear (Lb.)	Sixth Gear (Lb.)	Travel Speeds at Normal Governed Engine R.P.M.: First Gear (M.P.H.)	Second Gear (M.P.H.)	Third Gear (M.P.H.)	Fourth Gear (M.P.H.)
1	Allis-Chalmers . . HD-5	5⅞	11½	10500	44	60	21	13½	124⅞	62½	80⅝ ◆	13	64¼	50.25	40.28	Op	5	1	10080	5690	4200	3375	2220	....	1.46	2.44	3.30	3.96
2	HD-7	7	9½	13830	52	63	19½	11⅝	127¼	70	66⅛ ◆	16	67	71.08	60.10	Op	4	1	12600	9705	7015	4070	....	....	1.59	2.19	2.97	5.00
3	HD-9	8⅔	13⅛	18800	....	74	26⅝	16½	150	95⅛	72⅛	16	85¼	84.00	72.00	Op	6	3	19030	12240	8890	6590	5410	3920	1.40	2.10	2.90	3.80
4	HD-10	8¼	11⅝	21000	62	74	32	14⅛	150¼	82¼	75⅛	18	84½	101.62	86.63	Op	6	2	18650	14050	10605	7730	5585	3885	1.57	2.06	2.68	3.54
5	HD-15	8¼	14⅝	27850	....	74	35	17⅞	172½	96⅛	83½	20	96⅛	124.00	108.00	Op	6	3	29400	19080	13100	9670	8050	5840	1.40	2.10	3.00	3.90
6	HD-19.4	10¼	16¼	40000	....	84	44	19½	190⅛	109¼	94⅛	24	106⅝	163.00	....	....	‡	‡‡	**	‡	‡	‡	‡	....	**	‡	‡	‡
7	HD-20	10¼	16½	41000	....	84	44	19½	190⅛	109¼	94⅛	24	106⅝	175.00	....	....	†	■	▼	†	†	†	†	....	▼	†	†	†
8	Caterpillar . Diesel-D-2	....	9	6710	40	50	20	12	107⅝	56¾	57⅝	12	54⅛	38.00	32.00	Op	5	1	6950	4730	3750	2990	1950	....	1.70	2.50	3.00	3.60
9	Diesel-D-4	....	11½	10065	44	60	21	14¼	120½	62	60⅛	13	61½	48.00	43.00	Op	5	1	9550	6930	5270	4000	2570	....	1.70	2.40	3.00	3.70
10	Diesel-D-6	....	12½	16725	60	74	27¾	14	149⅞	80½	75⅛	16	85⅝	76.00	66.00	Op	5	4	17000	10900	7450	5150	3820	....	1.40	2.30	3.20	4.40
11	Diesel-D-7	....	15¼	25130	74	74	36	17¼	162¼	97	80	20	93¼	93.00	81.00	Op	5	4	21700	13500	9020	6000	4270	....	1.40	2.20	3.20	4.80
12	Diesel-D-9	....	10¼	35950	78	78	43	18½	189¼	103⅝	90	22	99⅝	148.00	130.00	Op	5	3	28700	21700	16650	11900	8600	....	1.70	2.30	2.80	3.70
13	I.H.C. T-6	5½	8⅝	6930	40	50	19⅝	12¼	104	53	74½ *	12	58⅝	38.96	32.92	Op	5	1	7652	5215	3579	2767	1756	....	1.52	2.21	3.12	3.83
14	T-6	5½	8⅝	7280	40	50	19⅝	12¼	104	53	72½ *	12	58⅝	40.29	33.78	Op	5	1	8131	5514	3742	2992	1905	....	1.52	2.21	3.12	3.83
15	T-9	6	10¼	9490	44	60	19¼	13⅝	114	59¼	80*	13	63½	48.69	42.98	Op	5	1	9868	6904	4556	3650	2434	....	1.56	2.20	3.04	3.88
16	TD-9	6	10¼	9805	44	60	19¼	13⅝	114	59¼	79*	13	63½	48.91	41.31	Op	5	1	9909	6872	4752	3826	2419	....	1.56	2.20	3.04	3.88
17	TD-14A	7½	11⅜	15975	56	74	27½	13¼	134½	74½	85⅛ *	16	78⅛	75.30	65.90	Op	6	2	14654	11772	8967	6695	5006	3613	1.57	2.05	2.65	3.36
18	TD-18A	8½	14	22830	62	74	31½	15⅝	158¼	82¼	92*	20	84⅝	101.98	89.29	Op	6	2	20234	15279	11754	8890	6502	4870	1.66	2.18	2.70	3.52
19	TD-24	9½	13⅞	38350	....	80	39½	17¼	182¼	102	102¾ *	22	**	....	148.43	Op	8	8	33714	26496	21873	17025	12468	++	1.60	2.03	2.45	3.12
20	Oliver . . Crawler OC-3	6½	20	3276	31	68	25	13¾	102½	41¼	50◆	6	50	26.38	21.85	Op	3	1	3940	2512	1472	....	....	....	2.02	3.19	5.25	....
21	Crawler AG-6	7½	13½	7086	42	50	21	11⅝	103½	58	54◆	12	62	38.80	30.60	Op	3	1	6020	4160	2640	....	....	....	1.78	2.62	3.74	....
22	Crawler AD	7½	13½	7662	42	50	21	11⅝	101½	58	54◆	12	62	38.00	30.50	Op	3	1	6500	4520	2890	....	....	....	1.78	2.62	3.74	....
23	Crawler BGS	8½	12	8514	44	52	14⅝	12½	106	62½	64◆	14	63	50.00	38.00	Op	4	2	7500	5700	4200	2000	....	....	1.80	2.63	3.44	5.40
24	Crawler BD	8½	12	9374	44	52	14⅝	12½	106	62½	64◆	14	63	48.09	38.05	Op	4	2	8012	5586	4127	2000	....	....	1.80	2.64	3.45	5.41
25	Crawler DC	9	12½	12472	48	61	16⅝	14½	128	69	67◆	16	74⅜	69.00	61.20	Op	4	2	11000	9350	7000	4156	....	....	1.84	2.49	3.31	5.30
26	Crawler DD	9	12½	13233	48	61	16⅝	14½	128	69	67◆	16	74⅜	67.71	61.19	Op	4	2	11816	10022	7596	4568	....	....	1.70	2.30	3.06	4.88
27	Crawler FDE	14½	18¼	29760	69	....	25	17¾	170	103¾	86⅜ ◆	22	96	130.00	110.00	Op	4	2	26800	15900	11000	6900	....	....	1.61	2.74	3.67	4.95
28	Terratrac GT-25	..	..	3290	....	....	16	15	96	(a)	51	7½	6½	25.00	20.00	Op	3	1	3100	2500	1500	....	....	....	1.92	3.04	4.98	....
29	GT-30	..	..	3400	....	....	16	15	96	(b)	51	10	6½	30.00	24.00	Op	3	1	3600	3100	2000	....	....	....	1.78	2.81	4.61	....
30	DT-34	....	....	4250	....	....	16	15	98	(c)	53	12	6½	31.00	26.00	Op	3	1	4230	3550	2100	....	....	....	1.74	2.75	4.52	....

ABBREVIATIONS

◆—Exclusive of tail pipes.
‡—2nd speed range 0–7 mph with 28,000 lb. pull.
‡‡—Low reverse speed range 0–5.5 mph with 36,000 lb. pull.
**—1st speed range 0–3 mph with 36,000 lb. pull.
^—With converter.
†—2nd speed range 0–7 mph with 36,900 lb. pull.
■—Low reverse speed range 0–5.5 mph with 36,900 lb. pull.
*—1st speed range 0–3 mph with 36,900 lb. pull.
•—Includes overhead exhaust mufflers.
••—Track length on ground 104½ in.
◆◆—9309 lb. in 6th gear, 7043 lb. in 7th, 4892 lb. in 8th.
^^—5.15 mph in 6th gear, 6.15 mph in 7th, 7.83 mph in 8th.
‡‡—8 reverse speeds ranging from 1.56 to 7.67.
◆◆—192 qts. including rear main frame cases.
▼—Electric starter optional.
**—Included in transmission.
(a)—Widths—44, 50, 56, 64, 68 and 80 in.
(b)—Widths—50, 56, 64 and 68 in.
(c)—Widths—54, 60, 68, 72 and 84 in.
A-R—Auburn or Rockford.
Aub—Auburn Clutch Co.
Bos—American Bosch Co.
Clu—Clutches.

MILITARY CARGO VEHICLE SPECIFICATIONS

MODEL	Manufacturer	Payload—Tons	WEIGHT: Empty (lbs.)	WEIGHT: Fully Equipped (lbs.)	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Length	OVERALL DIMENSIONS (In.): Height	Axle Ground Clearance (In.)	ENGINE: Make	ENGINE: No. of Cylinders, Bore and Stroke	ENGINE: Displacement (Cu. In.)	ENGINE: Fuel Used	ENGINE: Cooling Medium	ENGINE: Max. Brake Hp. at R.P.M.	Maximum Speed, MPH	Max. Fording Depth (In.)	Approx. Cruising Range (Miles)	TRANSMISSION: Make	TRANSMISSION: Type	TRANSMISSION: No. of Forward Speeds	TRANSMISSION: No. of Reverse Speeds	Differential—Type	Suspension—Type	SERVICE BRAKES: Actuated by—	SERVICE BRAKES: Type	Wheelbase (In.)
T51E1	GMC	5	15,745	25,745	96	236⅝	105	15½	Cont	12 4⅝ x4	537.6	G	Air	220 3000	55	72	200	GMC	Tq-Conv	3	1	SL	Itb	Air	Hyd	90½
M8E1	DA	7½	35,500	53,000	117	259	116⅝	18⅛	Cont	6 5¾ x5⅛	895.0	G	Air	500 2800	44	40	190	.....	Cr-Dr	2	1	.....	Inb	MD	Mec	156⅛
M34	Reo	2½	11,775	16,775	88	274⅜ *	107	14	Reo	6 4½ x4½	331.0	G	Liq	146 3400	55	72	350	Reo	Conv	5	1	Conv	Bcp	Air	Hyd	156
M37	Dodge	¾	7,800	.....	.....	189¾ *	88½	10⅝	Dodge	6 3½ x4½	230.0	G	Liq	94 3200	54	84	200	Dodge	Conv	4	1	Conv	SE	.....	Hyd	112
M38	W-O	¼	1,500	3,429	62	132½	67¼	9¼	W-O	4 3½ x4½	134.2	G	Liq	60 4000	60	84	200	W-O	Conv	3	1	Conv	SE	.....	Hyd	80

ABBREVIATIONS

*—With winch.
Bcp—Bogie, constant parallel arm (leaf spring).
Cont—Continental Motors Corp.
Cr-Dr—Cross drive.
Conv—Conventional.
DA—Detroit Arsenal.
G—Gasoline.
GMC—General Motors Corp.
Hyd—Hydraulic.
Inb—Individual torsion bar.
Itb—Independent torsion bar design.
Liq—Liquid. Mec—Mechanical.
MD—Multiple disc.
SE—Conventional semi-eliptic leaf spring.
SL—Self locking.
Tq-Conv—Torque, conventional.
W-O—Willys-Overland Motors.

LAYING TYPES

Travel Speeds at Normal Governed Engine R.P.M.				ENGINE										FUEL											BELT PULLEY			CAPACITIES								
Fifth Gear (M.P.H.)	Sixth Gear (M.P.H.)	Low Reverse (M.P.H.)	High Reverse (M.P.H.)	Make and Model	Cycle	No. of Cylinders—Bore and Stroke (In.)	Displacement (Cu. In.)	R.P.M. at Governed Speed	S.A.E. or Tax Hp.	Valve Arrangement	No. of Main Bearings	Diam. Main Bearings (In.)	Standard	Optional	Ignition—Make	Carburetor or Injector Pump—Make	Air Cleaner—Make	Governor—Make	Oiling System—Type	Cooling System—Type	Clutch—Make and Type	Drive Type to Traction Members	Diameter (In.)	Face (In.)	Normal R.P.M.	Steering Type	Cooling System (Gal.)	Fuel Tank (Gal.)	Crankcase (Qts.)	Transmission (Qts.)	Final Drive Case (Qts.) (Each Case)	Starting Method	Line Number
5.47		1.99		GM....2-71	2	2-4½x5	142	1800	14.5	I	3	3½	O		No	GM	Uni	GM	P	Pu	A-R..SP	SG	12	8¾	863	Clu	3¾	37	8	20	12	Ele	1
		1.89		GM....3-71	2	3-4½x5	213	1500	21.7	I	4	3½	O		No	GM	Uni	GM	P	Pu	Aub..SP	SG	12	8¾	889	Clu	5¾	31	11	26	7	Ele	2
4.40	5.70	1.60	4.40	GM....4-71	2	4-4½x5	284	1600	28.9	I	5	3½	O		No	GM	Uni	GM	P	Pu	Roc..SP	SG	13½	10	929	Clu	7½	55	16	27	13	Ele	3
4.62	6.03	1.85	4.15	GM....4-71	2	4-4½x5	284	1600	28.9	I	5	3½	O		No	GM	Uni	GM	P	Pu	Roc..SP	SG	13½	10	930	Clu	9¾	44	13	28	8	Ele	4
4.50	5.86	1.50	4.50	GM....6-71	2	6-4½x5	426	1600	43.4	I	7	3½	O		No	GM	Uni	GM	P	Pu	Roc..SP	SG	18	15	693	Clu	11¾	90	20	34	22	Ele	5
		‡‡		GM....6-71	2	6-4½x5	426	1600	43.4	I	7	3½	O		No	GM	Uni	GM	P	Pu	TD..^SP	SG	20	15	430	Clu	13	120	20	39	30	Ele	6
		"		GM....6-110	2	6-5x5½‡‡	660	1700	60.0	I	7	4	O		No	GM	Uni	GM	P	Pu	TD..^SP	SG	20	15	430	Clu	15	120	30	39	30	Ele	7
5.10		2.10		Own....D2	4	4-4x5	252	1525	25.6	I	5	2¾	D			Own	Don	Own	P	Pu	Own..SP	SG	12	7½	950	Clu	7¾	20	15	8	4	GE	8
5.40		1.90		Own....D4	4	4-4½x5½	350	1400	32.4	I	6	3½	D			Own	Don	Own	P	Pu	Own..SP	SG	12	8½	840	Clu	11	30	17	20	7	GE	9
5.80		1.80	5.40	Own....D6	4	6-4½x5½	525	1400	48.6	I	7	3½	D			Own	Don	Own	P	Pu	Own..SP	SG	13½	13	913	Clu	12¼	48	19	36	11	GE	10
6.00		1.60	5.40	Own....D7	4	4-5½x6	831	1000	52.9	I	6	3¾	D			Own	Don	Own	P	Pu	Own..SP	SG	17½	15	692	Clu	18	95	22	40	22	GE	11
4.80		2.20	3.70	Own....D8	4	6-5¾x6	1246	1000	79.3	I	7	3¾	D			Own	Don	Own	P	Pu	Own..SP	SG	14½	15	848	Clu	28	98	34	42	28	GE	12
5.41		1.73		Own....6	4	4-3½x5¼	248	1450	24.0	I	3	2¾	G	D, K	Own	Own	Don	Own	P	Pu	Roc..SP	SG	12½	8½	811	Clu	9½	20	9	16	1	HE	13
5.41		1.73		Own....D6	4	4-3½x5¼	248	1450	24.0	I	5	3¾	O			Own	Don	Own	P	Pu	Roc..SP	SG	12½	8½	811	Clu	10½	20	9	16	1	HE	14
5.30		1.75		Own....9	4	4-4½x5½	334	1400	31.0	I	3	3¼	G	D, K	Own	Own	Don	Own	P	Pu	Roc..SP	SG	11	8½	878	Clu	12	31	11	22	1½	HE	15
5.30		1.75		Own....D9	4	4-4½x5½	334	1400	31.0	I	5	4¼	O			Own	Don	Own	P	Pu	Roc..SP	SG	11	8½	878	Clu	13	31	11	22	1½	HE	16
4.38	5.66	1.52	3.38	Own....D-14A	4	4-4¾x6½	461	1400	38.1	I	5	3¼	O			Own	Don	Own	P	Pu	Roc..SP	SG	11½	11	875	Clu	18	45	16	24	3	HE	17
4.64	5.72	1.67	3.54	Own....D-18A	4	4-4¾x6½	691	1350	54.1	I	7	3½	O			Own	Don	Own	P	Pu	Roc..SP	SG	13½	12	844	Clu	26	90	26	30	8½	Ele	18
4.05	**	‡‡	‡‡	Own....D24	6	6-5½x7	1090	1375	79.3	I	7	4½	O			DR	Own	Don	Own	P	Pu	Roc..DP	SG				PL	37	85	30	**	9	Ele	19
		2.33		Herc....IXB3	4	4-3¼x4	133	1700	16.9	L	3	2	G	K	WI	Mar	Vor	Han	P	Pu	Lg...SP	SG	8½	6½	1038	Dif	2¾	12	5	8	¾	HC*	20
		1.36		Cont....F226	4	6-3⅛x4⅝	226	1530	26.3	L	4	2⅛	G	K	Bos	Til	Vor	Novi	P	Pu	Lg...DP	SG	10½	8½	1130	Dif	5	18	8	32	**	HC*	21
		1.36		Herc....DOOC	4	4-4x4½	226	1530	25.6	I	5	3	O			Bos	Vor	Bos	P	Pu	Lg...DP	SG	10½	8½	1130	Dif	5½	18	13	32	**	Ele	22
		1.80	3.44	Herc....JXD	4	6-4x4½	320	1530	38.4	L	7	2½	G	K	DR	Til	Vor	Pie	P	Pu	Lg...DP	SG	12	8½	1150	Dif	6	23	7	36	**	Ele	23
		1.80	3.45	Herc....DJXC	4	6-3⅝x4½	296	1400	33.7	I	7	3	O			Bos	Vor	Bos	P	Pu	Lg...DP	SG	12	8½	1050	Dif	5	23	12	36	**	Ele	24
		2.19	3.94	Herc....RXC	4	6-4⅝x5½	529	1300	51.3	L	7	3	O		DR	Til	Vor	Pie	P	Pu	Lg...DP	SG	13	11	960	Dif	10¼	30	12	52	**	Ele	25
		2.62	3.64	Herc....DRXE	4	6-4⅝x5½	474	1200	45.9	I	7	3½	O			Bos	Vor	Bos	P	Pu	Lg...DP	SG	13	11	884	Dif	10½	33	16	52	**	Ele	26
		1.56	2.83	Herc....DFXE	4	6-5½x6	865	1300	75.9	I	7	4½	O			Bos	Vor	Bos	P	Pu	Lg...SP	PL	24½	15	535	Dif	15½	90	34	144	**	Ele	27
		2.22		Cont....F124	4	4-3x4⅝	123	2000	14.4	L	3	1¾	G, O		AL	Zen	Don	Bos	P	Pu	Roc..SP	SG	8½	6½	1220	PL	2¾	10	4	8		Ele	28
		2.06		Cont....F140	4	4-3⅛x4⅝	139	1850	16.3	L	3	1¾	G, O		AL	Zen	Don	Bos	P	Pu	Roc..SP	SG	8½	6½	1130	PL	3½	10	4	8		Ele	29
		2.01		Cont..GD157	4	4-3⅝x4⅝	157	1850	18.2	I	3	2⅛	G, O			Com	Bos	Don	Bos	P	Pu	Roc..SP	SG	8½	6½	1130	PL	4	16	5	8		Ele	30

Com—Compression.
Cont—Continental Motors Corp.
D—Distillate.
Dif—Differential.
Don—Donaldson Co.
DP—Double plate, dry.
DR—Delco Remy Div.
Ele—Electric.
GE—Independent gas engine.
GM—General Motors Corp.
Han—Handy Governor Corp.
H—Hand crank
HE—Hand crank or electric.
Herc—Hercules Motor Corp.
I—In head (Valves).
K—Kerosene.
L—"L" head (Valves).
Lg—Long Mfg. Div.
Mar—Marvel-Schebler Carburetor Div.
Novi—Novi Equipment Co.
O—Diesel fuel.
P—Pressure.
Pie—Pierce Governor Corp.
PL—Planetary.
Pu—Pump.
Roc—Rockford Drilling Machine Div.
SG—Spur gear.
SP—Single plate, dry.
TD—Twin Disc Clutch Co.
Til—Tillotson Mfg. Co.
Uni—United Air Cleaners Div.
Vor—Vortox Mfg. Co.
Wi—Wico Electric Co.
Zen—Zenith Carburetor Div.

For Directory of the Manufacturers listed above, see page 338

Transit Buses—Number in Use, Deliveries and Passengers Carried

As reported by The American Transit Association

Number of Transit Vehicles in Use by Types

Year	Railway: Surface	Railway: Subway and Elevated	Railway: Total	Trolley Coach	Motor Bus	Grand Total
1943	27,250	10,255	37,505	3,501	47,100	88,106
1944	27,180	10,219	37,399	3,561	48,400	89,360
1945	26,680	10,217	36,897	3,711	49,670	90,278
1946	24,730	9,429	34,159	3,916	52,450	90,525
1947	21,607	9,370	30,977	4,707	56,917	92,601
1948	17,578	9,456	27,034	5,687	58,540	91,261
1949	15,505	9,869	25,374	6,338	57,035	88,747
1950	13,800	9,743	23,543	6,504	56,820	86,867
1951†	12,300	9,600	21,900	7,000	57,600	86,500

† Preliminary.

New Passenger Vehicles Delivered to Transit Companies

Year	Railway Cars: Surface	Railway Cars: Subway and Elevated	Railway Cars: Total	Trolley Coaches	Motor Buses	Grand Total
1943	32	...	32	116	1,251	1,399
1944	284	...	284	60	3,807	4,151
1945	332	...	332	161	4,441	4,934
1946	421	...	421	266	6,463	7,150
1947	626	2	628	955	12,029	13,612
1948	478	248	726	1,430	7,009	9,165
1949	273	415	688	680	3,358	4,726
1950	4	199	203	179	2,668	3,050
1951	56	140	196	600	4,500	5,296

New Transit Buses Delivered—by Seating Capacity—1943 to 1950

Year	Seating Capacity: 29 or less	30 to 39	40 or more	Total Buses
1943	847	179	225	1,215
1944	2,423	369	1,015	3,807
1945	1,757	1,183	1,501	4,441
1946	1,849	2,429	2,185	6,463
1947	1,951	3,717	6,361	12,029
1948	523	2,144	4,342	7,009
1949	289	1,344	1,725	3,358
1950	205	852	1,611	2,668
1951†	n.a.	n.a.	n.a.	4,500

†—Preliminary. n.a.—Not available.

Total Transit Passengers Carried by Types of Vehicles—1940 to 1950

(Millions of Persons)

Year	Railway: Surface	Railway: Subway and Elevated	Railway: Total	Trolley Coach	Motor Bus	Grand Total
1943	9,150	2,656	11,806	1,175	9,019	22,000
1944	9,516	2,621	12,137	1,234	9,646	23,017
1945	9,426	2,698	12,124	1,244	9,886	23,254
1946	9,027	2,835	11,862	1,311	10,199	23,372
1947	8,096	2,756	10,852	1,356	10,332	22,540
1948	6,506	2,606	9,112	1,528	10,728	21,368
1949	4,839	2,346	7,185	1,661	10,162	19,008
1950	3,904	2,264	6,168	1,658	9,420	17,246
1951	3,090	2,220	5,310	1,654	9,236	16,200

1952 BRITISH PASSENGER CARS

MAKE AND MODEL	ENGINE: Number of Cylinders, Bore and Stroke (In.)	ENGINE: Maximum Brake Hp. at Specified R.P.M.	ENGINE: Piston Displacement (Cu. In.)	ENGINE: Compression Ratio (To 1)	ENGINE: Cylinder Arrangement	ENGINE: Valve Location	ENGINE: Piston Material	ENGINE: Camshaft Drive	GENERAL DATA: Wheelbase (In.)	GENERAL DATA: Tread Front (In.)	GENERAL DATA: Tread Rear (In.)	GENERAL DATA: Overall Dimensions (In.) Length Including Bumpers and Bumper Guards	GENERAL DATA: Overall Dimensions (In.) Width	GENERAL DATA: Overall Dimensions (In.) Height—Road to Roof, No Load	GENERAL DATA: Tires (In.)	GENERAL DATA: Oil Pressure to—	GENERAL DATA: Carburetors—No. Used and Type	GENERAL DATA: Cooling System	GENERAL DATA: Shifting Method	GENERAL DATA: No. of Forward Speeds	REAR AXLE: Final Drive Type	REAR AXLE: Gear Ratio (To 1)	REAR AXLE: Torque Taken By	Independent Suspension	Service Brakes	Shipping Weight (Lb.)
Allard K	8-3.06x3.75	95-3800	223.9	7.00	V	L	AA	HG	106.0	56.0	52.0	146.0	68.0	47.0	6.25/16	abe	2-DD	TP	HS	3	SB	3.78	TT	Fr	H	2488
J	8-3.19x3.75	140-4000	238.5	7.00	V	I	AA	HG	100.0	56.0	52.0	148.0	63.0	34.0	6.00/16	abe	2-De	TP	HS	3	SB	3.27	TT	Fr	H	2016
P-2X P	8-3.06x3.75	85-3500	223.9	6.15	V	L	AA	HG	112.0	56.0	56.0	189.0	71.0	60.0	6.25/16	abe	1-DD	TP	HS	3	SB	3.78	TT	Fr	H	3248
Alta **GP1	4-3.07x3.07	275-6300	90.0	8.50	IL	I	AA	C	92.0	51.0	50.0	.....	.....	.....	(aa)	abcde	2-He	P	HS	4	StB	3.80	TA	FR	H	1600
GP2	4-3.29x3.54	170-6100	121.4	14.70	IL	I	AA	C	92.0	51.0	50.0	.....	.....	.....	(bb)	abcde	2-He	P	HS	4	StB	3.80	TA	FR	H	1600
Alvis TA-21	6-3.31x3.54	83-4000	182.4	7.25	IL	I	AA	C	111.5	54.5	54.1	182.1	66.0	62.5	6.00/15	abce	1-DD	P	HS	4	Hy	4.09	Sp	Fr	H	3192
TB-21	6-3.31x3.54	95-4000	182.6	7.25	IL	I	AA	C	111.5	54.5	54.1	177.2	67.0	58.0	6.00/15	abce	1-SH	P	HS	4	Hy	3.77	Sp	Fr	H	2828
Armstrong Siddeley 18HP	6-2.76x3.94	75-4200	140.9	6.50	IL	I	AA	C	115.0	54.0	54.5	186.0	68.0	61.0	5.50/17	abce	1-De	P	HP	4	Hy	5.10		Fr	HM	3115
Aston-Martin DB2	6-3.07x3.54	107-5000	157.2	8.50	IL	I	AA	C	99.0	54.0	54.0	162.5	65.0	53.5	6.00/16	abe	2-He	P	HS	4	Hy	3.77	Se	Fr	H	2454
†DB2	6-3.07x3.54	123-5000	157.2	8.16	IL	I	AA	C	99.0	54.0	54.0	162.5	65.0	53.5	6.00/16	abe	2-He	P	HS	4	Hy	4.10	Sp	Fr	H	2454
Austin A30-7	4-2.28-3.00	30-4800	48.0	7.20	IL	I	AA	C	79.5	45.3	44.8	138.6	55.1	58.0	5.20/13	abce	1-De	P	HS	4	Hy	5.14	Sp	Fr	HM	1494
A40	4-2.58x3.50	40-4300	73.2	7.20	IL	I	AA	C	92.5	48.5	49.5	153.2	61.0	63.8	5.25/16	abce	1-De	P	HS	4	SB	5.14	Sp	Fr	H	2016
A40 Sports	4-2.58x3.50	50-4800	73.2	7.20	IL	I	AA	C	92.5	48.5	49.5	159.2	61.0	57.0	5.25/16	abce	2-De	P	HS	4	SB	4.12	Sp	Fr	H	2744
A70	4-3.12x4.38	68-3800	134.2	6.80	IL	I	AA	C	99.0	53.5	55.5	167.5	69.6	65.8	6.00/16	abce	2-De	P	HS	4	SB	4.12	Sp	Fr	H	3000
A90	4-3.44x4.38	88-4000	162.2	7.50	IL	I	AA	C	99.0	53.0	55.5	177.1	70.0	60.0	5.50/16	abce	2-De	P	HS	4	SB	4.09	Sp	Fr	H	3382
A125, A135	6-3.44x4.38		244.0	8.80	IL	I	AA	C	119.0	58.0	60.0	192.0	73.0	67.0	6.50/16	abce	1-De	P	HS	4	Hy	4.09	Sp	Fr	H	4382
Bentley Mark VI	6-3.82x4.50		279.0	6.40	IL	F	AA	HG	120.0	58.5	58.5	192.0	70.0	68.0	6.50/16	abed	2-SH	P	HS	4	Hy	3.73	Sp	Fr	HM	4150
Bristol 401	6-2.80x3.78	85-4500	120.2	7.50	IL	I	AA	C	114.0	51.7	54.0	191.7	67.0	60.0	5.75/16	abcde	3-De	P	HS	4	SB	3.90	RA	Fr	H	2700
Citroen ‡Light 15	4-3.07x3.94	56-4300	116.6	6.50	IL	I	AA	C	114.5	54.0	53.5	188.0	65.2	59.2	6.50/18	abce	1-SD	TS	HS	3	SB	3.88	Sp	Fr	H	2352
‡Six	6-3.07x3.94	76-3700	175.0	6.40	IL	I	AA	C	121.5	58.5	58.0	191.0	69.2	60.2	7.25/16	abce	1-DD	TS	HS	3	SB	4.30	Sp	Fr	H	3052
Connaught L3, L3SK	4-2.95x3.94	NA	107.7	9.20	IL	I	AA	C	99.0	39.5	48.5	147.0	60.0	41.0	6.00/16	abce	2-He	P	HS	4	Hy	4.30	Sp	Fr	H	2000
Daimler Consort	6-2.74x4.35	70-4200	154.0	7.00	IL	I	AA	C	114.0	52.0	52.0	180.0	64.5	63.0	6.00/16	abce	1-He	P	Pr	4	Hy	4.30	Sp	Fr	MH	3440
Regency	6-3.00x4.25	90-3800	180.0	6.70	IL	I	AA	C	114.0	56.0	57.0	191.0	71.0	64.5	6.50/16	abce	1-SD	P	Pr	4	Hy	4.30	Sp	Fr	HM	1032
Sports	6-2.74x4.35	85-4200	154.0	7.00	IL	I	AA	C	114.0	52.0	52.0	187.5	64.5	62.0	6.00/16	abce	2-He	P	Pr	4	Wo	4.86	Sp	Fr	MH	3520
DE36	6-3.35x4.72	150-3600	333.0	6.30	IL	I	AA	C	147.0	60.0	63.0	222.0	73.5	72.0	8.00/17	abce	2-De	P	Pr	4	Hy	4.09	TA	Fr	MH	5910
Dellow MK II	4-2.50x1.14	31-4000	71.4	6.16	IL	L	AA	C	84.0	48.0	45.0	138.0	53.0	51.0	6.00/16	abce	1-De	P	HS	3	SB	5.50	TT	N	M	1299
Ford Zephyr Six	6-3.12x3.00	68-4000	138.0	6.80	IL	I	AS	C	104.0	50.0	49.0	171.0	63.9	60.8	6.40/13	abce	1-SD	P	HS	3	Hy	4.38	Sp	Fr	H	2447
Consul	4-3.12x3.00	47-4400	92.0	6.80	IL	I	AS	C	100.0	50.0	49.0	162.6	64.0	60.8	5.90/13	abce	1-SD	P	HS	3	Hy	4.62	Sp	Fr	H	2262
*Prefect	4-2.50x3.64	30-4000	71.6	6.16	IL	L	AA	C	94.0	45.0	45.0	155.2	56.3	63.5	5.00/16	abce	1-SD	TS	HS	3	SB	5.50	TT	N	M	1817
Domestic Ang.	4-2.23x3.64	23-4000	58.9	6.30	IL	L	AA	C	90.0	45.0	45.0	152.2	56.5	64.2	4.50/17	abce	1-SD	TS	HS	3	SB	5.50	TT	N	M	1636
Export Ang.	4-2.50x3.64	30-4000	71.6	6.16	IL	L	AA	C	90.0	45.0	45.0	152.2	56.5	64.2	5.00/16	abce	1-SD	TS	HS	3	SB	5.50	TT	N	M	1857
Frazer-Nash LeMans Replica	6-2.60x3.78	125-5500	120.2	8.50	IL	I	AA	C	96.0	48.0	48.0	141.0	58.0	37.0	5.25/16	abcde	1-De	P	HS	4	SB	3.50	RA	FR	H	1540
Mille Miglia	6-2.60x3.78	125-5500	120.2	8.50	IL	I	AA	C	96.0	48.0	48.0	150.0	58.0	35.5	5.25/16	abcde	1-De	P	HS	4	SB	3.50	RA	FR	H	1764
Drop-head Coupe	6-2.60x3.78	85-4500	120.2	7.50	IL	I	AA	C	96.0	50.0	50.0	152.0	60.0	53.0	5.50/16	abcde	3-De	P	HS	4	SB	3.50	RA	FR	H	1988
Hillman Minx	4-2.58x3.74	42-4200	77.2	6.63	IL	L	AA	C	93.0	48.8	48.8	160.0	62.0	60.0	5.50/15	abcde	1-De	P	HS	4	SB	5.22	Sp	Fr	H	1905
HRG 1100	4-2.36x3.74	40-5200	65.5	7.75	IL	I	AA	C	100.5	48.0	46.0	143.0	59.0	.....	5.50/17	abce	2-De	P	HS	4	SR	4.55	Sp	N	M	1280
1500	4-2.68x4.06	61-4800	91.3	7.00	IL	I	AA	C	103.5	48.0	45.0	146.0	59.0	.....	5.50/17	abce	2-De	P	HS	4	SR	4.00	Sp	N	M	1372
Humber Hawk	4-3.19x4.33	58-3400	138.2	6.32	IL	L	AA	C	105.5	56.0	57.0	174.0	70.0	64.2	6.40/15	abce	1-De	P	HS	4	Hy	4.88		Fr	H	2758
Super Snipe	6-3.35x4.72	100-3400	249.2	6.25	IL	L	AA	C	117.5	57.9	61.0	190.8	74.8	65.8	6.50/16	abcde	1-De	P	HS	4	SR	4.09	Sp	Fr	H	3745
Pullman	6-3.35x4.72	100-3400	249.2	6.25	IL	L	AA	C	131.0	57.9	62.2	211.9	74.8	69.0	7.00/16	abcde	1-De	P	HS	4	SB	4.09	Sp	Fr	H	4488
Jaguar XK 120	6-3.27x4.17	160-5200	210.0	8.00	IL	I	AA	C	100.0	51.0	50.0	173.5	62.0	52.5	6.00/16	abcde	2-SH	P	HS	4	Hy	3.64	Sp	Fr	H	2750
Mark VII	6-3.27x4.17	160-5200	210.0	8.00	IL	I	AA	C	120.0	56.0	57.5	196.5	73.0	63.0	6.70/16	abcde	2-SH	P	HS	4	Hy	4.27	Sp	Fr	H	3700
Jensen Saloon	6-3.43x4.37	130-4000	243.0	6.80	IL	I	AA	C	127.5	58.0	59.0	197.0	70.0	.....	6.50/16	ac	3-De	P	HS	4	Hy	3.70	TA	Fr	HM	3584
Interceptor	6-3.43x4.37	130-4000	243.0	6.80	IL	I	AA	C	114.0	54.0	57.0	183.0	68.0	.....	6.00/16	ac	1-De	P	HS	4	Hy	3.28	Sp	Fr	H	2900
Jowett Javelin	4-2.86x3.54	52-4500	91.1	7.20	HO	I	AA	C	102.0	52.0	49.8	168.0	61.0	62.5	5.25/16	abce	2-SD	P	HS	4	Hy	4.88	TA	FR	H	2240
Jupiter	4-2.86x3.54	60-4500	91.1	8.00	HO	I	AA	C	93.0	52.0	50.5	168.0	62.0	58.0	5.90/16	abce	2-SD	P	HS	4	Hy	4.56	TA	FR	H	1792
Lagonda Saloon, Coupe	6-3.07x3.54	105-5000	157.2	8.50	IL	I	AA	C	113.5	56.4	56.8	188.0	68.0	64.0	6.00/16	abe	2-He	P	HS	4	Hy	4.56	TT	FR	H	3248
Lanchester 14	4-3.00x4.25	60-4200	120.0	6.70	IL	I	AA	C	104.0	52.0	52.0	175.0	65.0	62.0	6.70/15	abce	1-De	P	Pr	4	Hy	4.56	Sp	Fr	MH	3138
Lea-Francis 18 HP	4-3.35x4.33	95-4000	163.0	6.00	IL	I	AA	C	111.0	52.1	52.4	184.0	64.0	60.5	6.00/16	abce	1-ST	TS	HS	4	Hy	4.55	Sp	Fr	MH	3024
2½ Litre	4-3.35x4.33	100-4000	163.0	7.00	IL	I	AA	C	99.0	52.1	52.4	168.0	62.0	52.0	6.00/16	abce	2-ST	P	HS	4	Hy	3.91	Sp	Fr	MH	3024
14 HP	4-2.95x3.94	70-4700	108.0	7.25	IL	I	AA	CH	111.0	52.1	52.4	184.0	64.0	60.0	5.50/17	abce	1-ST	P	HS	4	Hy	3.64	Sp	Fr	MH	2676
14 HP Estate Car	4-2.95x3.94	66-4700	108.0	7.25	IL	I	AA	CH	111.0	52.1	52.4	184.0	64.0	64.0	5.50/17	abce	1-ST	P	HS	4	Hy	4.88	Sp	Fr	MH	2828
M. G. TD	4-2.62-3.54	54-5200	76.3	7.12	IL	I	AA	C	94.0	47.4	50.0	145.0	58.6	53.0	5.50/15	abce	2-De	P	HS	4	Hy	4.88	Sp	Fr	H	2828
Mergan Plus 4	4-3.35x3.62	68-4200	127.6	6.70	IL	I	AA	C	96.0	47.0	47.0	144.0	56.0	52.5	5.25/16	abcde	1-De	P	HS	4	Hy	5.12	Sp	Fr	H	2055
Morris Minor	4-2.24x3.54	28-4400	56.0	6.60	IL	L	AT	C	86.0	50.6	50.3	148.0	61.0	60.0	5.00/14	abce	1-He	P	HS	4	Hy	4.10	Sp	Fr	H	1700
Oxford	4-2.89x3.43	41-4000	90.0	6.60	IL	L	AA	HG	97.0	53.5	53.0	167.0	65.0	63.0	5.50/16	abce	1-He	P	HS	4	Hy	4.55	Sp	Fr	H	1670
Six	6-2.99x3.43	70-4600	135.0	7.00	IL	I	AW	VS	110.0	54.0	53.0	177.0	66.0	63.5	6.00/15	abce	1-He	P	HS	4	Hy	4.55	Sp	Fr	H	2218
Riley 1½ Litre	4-2.72x3.94	55-4500	91.3	6.70	IL	I	AA	C	112.5	52.2	52.2	179.0	63.5	59.0	5.75/16	abce	1-He	P	HS	4	SB	4.09	Sp	Fr	H	2744
2½ Litre	4-3.17x4.72	100-4500	149.0	6.80	IL	I	AA	C	119.0	52.2	52.2	186.0	63.5	58.5	6.00/16	abce	2-He	P	HS	4	SB	4.11	Sp	Fr	H	2688
Rolls-Royce Silver Dawn	6-3.62x4.50		279.0	6.40	IL	F	AA	HG	120.0	56.5	58.5	192.0	70.0	66.0	6.80/16	abcd	1-DD	P	HS	4	Hy	3.73	Sp	Fr	HM	4150
Silver Wraith	6-3.62x4.50		279.0	6.40	IL	F	AA	HG	127.0	58.5	60.0	206.0	73.0	72.5	6.50/17	abcd	1-DD	P	HS	4	Hy	3.73	Sp	Fr	HM	4500
Rover 75	6-2.57x4.14	75-4200	128.2	7.25	IL	F	AA	C	111.0	52.0	51.5	178.2	65.6	63.2	6.00/15	abce	2-He	P	HS	4	SB	4.30	Sp	Fr	H	3138
Singer 4AD	4-2.88x3.62	48-4200	91.3	7.00	IL	I	AA	C	91.0	46.7	46.7	151.5	56.0	56.5	5.00/16	abe	1-SD	P	HS	4	SB	4.88	Sp	Fr	HM	1820
SM1500	4-2.88x3.52	48-4200	91.3	7.00	IL	I	AA	C	107.5	50.5	51.0	174.0	63.0	64.0	5.50/16	abce	1-SD	P	HS	4	Hy	5.12	Sp	Fr	H	2604
Standard Vanguard	4-3.35x3.62	68-4200	127.6	6.70	IL	I	AA	C	94.0	51.0	54.0	164.0	69.0	64.0	5.75/16	abcde	1-SD	P	HS	3	Hy	4.62	Sp	Fr	H	2832
Sunbeam-Talbot 90	4-3.19x4.33	70-4000	138.2	6.45	IL	I	AA	C	97.5	47.5	50.5	167.5	62.5	60.8	5.50/16	abce	1-De	P	HS	4	Hy	3.90	Sp	Fr	H	2956
Triumph Renown	4-3.35x3.62	68-4200	127.6	6.70	IL	I	AA	C	105.0	51.0	54.0	178.0	64.0	65.0	5.75/16	abcde	1-SD	P	HS	3	Hy	4.62	Sp	Fr	H	2772
Mayflower	4-2.48x3.94	38-4200	76.1	6.80	IL	L	AA	C	84.0	46.0	49.0	154.0	62.0	62.0	5.50/15	abce	1-SD	P	HS	3	Hy	5.12	Sp	Fr	H	2016
Vauxhall Wyvern	4-2.74x3.74	35-3000	88.0	6.40	IL	I	AA	C	103.0	53.0	54.5	172.5	67.0	63.2	5.60/15	abce	1-De	P	HS	3	Hy	4.62	Sp	Fr	H	2205
Velox	6-2.74x3.94	58-3500	138.8	6.75	IL	I	AA	C	103.0	53.0	54.5	172.5	67.0	63.5	5.90/15	abce	1-De	P	HS	3	Hy	4.12	Sp	Fr	H	2345
Wolseley 4/50	4-2.89x3.43	NA	90.0	6.60	IL	I	AW	VS	102.0	54.0	53.0	170.0	66.0	63.0	5.50/15	abce	1-He	P	HS	4	Hy	4.88	Sp	Fr	H	2482
6/80	6-2.89x3.43	NA	135.0	6.60	IL	I	AW	VS	110.0	54.0	53.0	177.0	66.0	63.5	6.00/15	abce	2-He	P	HS	4	Hy	4.55	Sp	Fr	H	3248

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1952 OTHER FOREIGN CARS

MAKE AND MODEL	ENGINE: Number of Cylinders, Bore and Stroke (In.)	ENGINE: Maximum Brake Hp. at Specified R.P.M.	ENGINE: Piston Displacement (Cu. In.)	ENGINE: Compression Ratio (To — 1)	ENGINE: Cylinder Arrangement	ENGINE: Valve Location	ENGINE: Piston Material	ENGINE: Camshaft Drive	GENERAL DATA: Wheelbase (In.)	GENERAL DATA: Tread Front (In.)	GENERAL DATA: Tread Rear (In.)	GENERAL DATA: Overall Dimensions (In.) Length Including Bumpers and Bumper Guards	GENERAL DATA: Overall Dimensions (In.) Width	GENERAL DATA: Overall Dimensions (In.) Height—Road to Roof, No Load	GENERAL DATA: Tires (In.)	GENERAL DATA: Oil Pressure to—	GENERAL DATA: Carburetors—No. Used and Type	GENERAL DATA: Cooling System	GENERAL DATA: Shifting Method	GENERAL DATA: No. of Forward Speeds	REAR AXLE: Final Drive Type	REAR AXLE: Gear Ratio (To — 1)	REAR AXLE: Torque Taken By	Independent Suspension	Service Brakes	Shipping Weight (Lb.)
AUSTRALIAN																											
Holden 48/215	6-3.00x3.12	60-3800	132.5	6.50	IL	I	AA	HG	103.0	53.0	54.0	172.0	66.8	61.6	5.50/15	abcde	1-SD	P	HS	3	SB, HG	3.89	Sp	Fr	H	2166
CZECHOSLOVAKIAN																											
Skoda 1102	4-2.60x2.68	32-4000	64.8	6.50	IL	I	AA	C	88.0	47.2	49.2	161.5	59.0	59.8	5.25/16	abc	1-SH	P	HS	4	SB	4.78	TT	FR	H	2000
Tatra Tatraplan	4-3.34x3.38	55-4000	119.0	6.00	HO	I	AA	HG	106.2	51.2	51.2	179.0	65.8	59.8	6.00/16	abc	2-SD	Air	HS	4	SB	4.09	TA	FR	H	2546
FRENCH																											
Bugatti 101	8-2.83x3.94	200-5500	198.7	6.50	IL	I	AA	HG	119.2	53.1	53.1	198.5	65.0	65.0	6.00/17	abcde	1-DD	P	HS	4	SB		TA	N	H	
Citroen 11 Legere	4-3.07x3.94	56-3800	116.6	6.50		I	AA		114.6	53.9		175.2	65.7	59.8	4.00/16		1-			3		3.44		N	H	
11 Normale	4-3.07x3.94	56-3800	116.6	6.50		I	AA		121.7	56.7		183.1	70.8	60.6	4.00/16		1-			3		3.44		N	H	
15	6-3.07x3.94	77-3800	174.9	6.50		I	AA		121.7	56.7		187.6	70.5	61.4	4.00/16		1-			3		3.07		N	H	
2CV	2-2.44x2.44	9-3800	22.9	6.20		I	AA		94.5	49.6	49.6	148.8	58.3	63.0	4.00/12		1-			3		3.87		N	H	1089
Ford Vedette	8-2.60x3.10	65-4000	132.0	7.00	V	L	AS	HG	106.0	53.2	54.4	178.0	68.0	62.0	6.40/15	abc	1-DD	P	HS	3	SB	4.33	Sp	Fr	H	2820
Coniete	8-2.60x3.10		131.6		V	L	AA	BG	105.9	53.1	54.3	181.8	68.1	55.9	6.40/15	ab	1-DD	P	HS	3	SB		Sp	Fr	H	
Hotchkiss 13-50	4-3.38x3.92	70-4000	141.0	6.20	IL	I	AA	C	115.0	57.1	56.6	187.6	69.6	61.0	6.40/16	ac	1-SU	P	HS	4	Hy	4.37	Sp	Fr	H	2960
20-50	6-3.36x3.94	100-4000	212.6	6.35	IL	I	AA	C	121.8	57.1	56.6	197.0	69.6	61.0	6.50/16	ac	1-SU	P	HS	4	Hy	3.90	Sp	Fr	H	3300
Gregoire	4-3.38x3.54	70-4000	134.0		HO	I	AA	C	98.5	56.7	52.0				5.50/16	ac	1-SU	P	HS	4	Hy		Sp	FR	H	2376
Mathis 666	6-3.50x3.00	80-4000	174.0	6.80	HO	L	AA	C	106.0	53.0	53.0	173.0	70.0	61.0	6.40/15	abc	2-Do	P	HS	6	Hy	4.10	TA	FR	H	2312
Panhard Levassor Dyna 3	2-2.84x2.96	28-5000	37.2	7.50	HO	I	AA	SG	84.0	48.0	48.0	150.5	56.7	61.5	5.70/16		1-SD	Air	HS	4	SB	6.33		Fr	H	1276
Dyna 4	2-3.13x2.96	35-5000	45.5	7.50	HO	I	AA	SG	84.0	48.0	48.0	150.5	56.7	61.5	5.70/16		1-SD	Air	HS	4	SB	6.33		Fr	H	1276
Dyna 120 Sprint	2-3.13x2.95	38-5000	43.3														2-Do									
Dyna 130	2-3.35x2.95	40-5000	49.1														1-DD									
Peugeot 203	4-2.96x2.68	42-4500	78.7	6.97	IL	I	AA	C	101.5	52.0	52.0	171.2	63.5	61.5	6.00/16		1-Do	P	HS	4	Wo	5.75	TT	Fr	H	1960
Renault R1062	4-2.15x3.15	21-5000	45.6	7.25	IL	I	AS	HG	82.6	47.6	47.6	142.0	56.3	57.9	5.00/15	abce	1-Do	P	HS	3	SB	4.71		FR	H	1232
R1100	4-3.35x3.46		121.8		IL	I	AS	HG	110.2	55.1	55.1	185.0	61.7	60.5	6.40/15	abce	1-Do	P	HS	4	SB	4.85	TA	FR	H	2646
Simca Sports	4-2.84x2.96	50-4800	74.5	7.75	IL	I	AA	C	95.2	48.5	48.2	161.5	61.0	51.2	5.25/15	abce	1-SD	TS	HS	4	SB	4.44	Sp	Fr	H	1960
S-8-1200	4-2.84x2.96	40-4400	74.5	6.25	IL	I	AA	C	95.2	48.5	48.2	158.0	58.3	59.0	5.25/15	abce	1-SD	TS	HS	4	SB	4.78	Sp	Fr	H	1914
9 Aronde	4-2.83x2.95	44-4500	74.4	6.75	IL	I	AA	C	96.0			160.0	61.5	57.5	5.50/15		1-Do	P	HS	4	Hy	3.77	Sp	Fr	H	
Talbot Lago T-15	4-3.66x3.90	120-4300	164.0	7.00	IL	I	AA	C	116.1	57.0	55.7	191.0	69.0	60.2	6.00/16	abce	2-Do	P	Pr	4	SB	3.92	Sp	Fr	H	3360
Lago T-26	6-3.66x4.33	160-4200	273.5	7.00	IL	I	AA	C	123.1	56.0	58.5	205.0	70.9	63.0	6.00/16	abce	2-Do	P	Pr	4	SB	3.58	Sp	Fr	H	4070
Lago T-26GS	6-3.66x4.33	190-4200	273.5	8.00	IL	I	AA	C	110.1	54.5	52.4				6.00/18	abce	3-Do	P	Pr	4	SB	3.36	Sp	Fr	H	24204
GERMAN																											
BMW 340	6-2.60x3.78	55-3750	120.0	6.70	IL	I	AA	C	113.0	51.2	55.1	181.1	69.5	64.2	5.50/16	abcde	2-Do	P	HS	4	Hy	4.55	TA	Fr	H	2950
Ford 12M	4-2.50x3.64	38-4250	71.5	6.80	IL	L	AS	HG	98.0	49.0	49.0	159.9	62.4	61.0	5.60/13	abc	1-Do	P	HS	3	SB	4.37	Sp	Fr	H	1810
Goliath GM700	2-2.91x3.15	24-4000	42.0	6.40	IL	N	AA	N	90.6	49.2	49.2	163.4	63.0	57.1	5.00/16		1-Ho	TS	HS	4			Sp	Fr	H	1818
Gutbrod Superior	2-2.76x3.07	24-4500	36.6		IL	DS	AA		78.7	44.4	45.6	140.1	56.6	53.7	4.25/15		1-Do	TS	HS	3	SB			Fr	H	1480
Lloyd LP300	2-2.13x2.52	10-4200	14.4	6.25	IL		AA		78.7	41.3	41.3	127.9	58.9	53.5	4.25/15		1-Ho	Air	HS	3	StB	4.87	Sp		M	1047
Mercedes-Benz 170V	4-2.96x3.94	45-3600	107.9	6.50	IL	L	AA	HG	112.0	51.6	52.9	168.5	64.0	63.0	5.50/16	abce	1-Up	P	HS	4	SB	4.12	TT	R	H	2450
170S	4-2.96x3.94	52-4000	107.9	6.50	IL	L	AA	HG	112.0	51.6	55.9	175.0	66.2	63.0	6.40/15	abce	1-Do	P	HS	4	SB	4.38	TT	R	H	2600
170D	4-2.96x3.94	40-3200	107.9	19.00	IL	L	AA	HG	112.0	51.6	52.9	168.5	64.0	63.0	5.50/16	abce	DI	P	HS	4	SB	4.12	TT	R	H	2540
220	6-3.15x2.89	80-4500	133.9	6.50	IL	I	AA	C	112.0	51.7	56.5	177.5	66.4	63.4	6.40/15	abcde	1-DD	P	HS	4	Hy	4.44	TT	R	H	2734
300	6-3.35x3.46	115-4800	182.7	6.40	IL	I	AA	C	120.0	56.6	60.0	195.0	72.3	63.0	7.10/15	abcde	1-SD	P	HS	4	Hy	4.44	TT	R	H	3536
300S	6-3.35x3.46	150	182.7	7.50	IL	I	AA	C	114.1	56.6	60.0				6.70/15	abcde	1-SD	P	HS	4	Hy	4.12	TT	R	H	1081
Opel Olympia	4-3.15x2.91	48-4600	90.8	6.15	IL	I	AS	HG	94.2	47.3	49.6	159.4	61.5	62.2	5.60/15	abcde	1-Do	P	HS	3	SB	4.30	Sp	Fr	H	1951
Kapitaen	6-3.15x3.23	64-3900	150.8	6.25	IL	I	AS	HG	106.1	52.7	52.2	185.6	67.7	64.0	6.40/15	abcde	1-Do	P	HS	3	SB	4.30	Sp	Fr	H	2534
Porsche 356/1.1 Ltr.	4-2.89x2.52	40-4000	66.2	7.00	HO	I	AA	Sh	82.6	50.7	49.2	152.7	65.3	51.1	5.00/16	abc	2-Do	Air	HS	4	StB	4.43	TT	FR	H	1842
356/1.3 Ltr.	4-3.15x2.52	44-4000	78.4	6.50	HO	I	AA	Sh	82.6	50.7	49.2	152.7	65.3	51.1	5.00/16	abc	2-Do	Air	HS	4	StB	4.43	TT	FR	H	1842
356/1.5 Ltr.	4-3.15x2.91	52-4000	90.7	6.50	HO	I	AA	Sh	82.6	50.7	49.2	152.7	65.3	51.1	5.00/16	abc	2-Do	Air	HS	4	StB	4.43	TT	FR	H	1842
VW (Volkswagen) 10/11	4-2.90x2.52	20-3300	69.0	5.80	HO	I	AS	HG	94.5	50.8	49.2	159.4	60.6	59.1	5.00/16	abc	1-SD	Air	HS	4	SB	4.43	TA	FR	MH	1530
2/22	4-2.90x2.52	29-3300	69.0	5.80	HO	I	AS	HG	94.5	53.4	53.5	161.5	66.9	74.8	5.50/16	abc	1-SD	Air	HS	4	SDR	6.20	TA	FR	H	2200
ITALIAN																											
Alfa-Romeo 1900 Norm	4-3.25x3.46	80-4800	114.9	7.90	IL	I	AA	C	103.5	51.5	51.5	173.2	62.9	58.6	5.50/16	abc	1-Up	P	HS	4	Hy	4.10		Fr	H	2535
1900C	4-3.25x3.46	100-5400	114.9	8.00	IL	I	AA	C	98.4	51.5	51.5	172.8	64.1	53.1	6.00/16	abc	2-Up	P	HS	4	Hy	4.10		Fr	H	2315
1900/AR52	4-3.25x3.46	65-4400	114.9	7.00	IL	I	AA	C	86.6	51.1	51.1	138.5	56.2	71.6	6.40/16	abc	1-SD	P	HS	8	SB	4.10	Sp	Fr	H	
2500CT	6-2.83x3.94	105-4800	149.0	7.50	IL	I	AA	C	118.1	57.5	56.3	194.8	72.6	60.2	4.50/17	abc	3-Do	P	HS	4	SB		Sp	FR	H	3529
Ferrari 212 Inter	12-2.68x2.31	180-6500	156.3	7.50					102.4	50.4	49.2				6.40/15		1-			5		4.66				2205

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OTHER FOREIGN CARS—*concluded*

MAKE AND MODEL	ENGINE									GENERAL DATA													REAR AXLE					
	Number of Cylinders, Bore and Stroke (In.)	Maximum Brake Hp. at Specified R.P.M.	Piston Displacement (Cu. In.)	Compression Ratio (To — 1)	Cylinder Arrangement	Valve Location	Piston Material	Camshaft Drive		Wheelbase (In.)	TREAD Front (In.)	TREAD Rear (In.)	OVERALL DIMENSIONS (In.) Length including Bumpers and Bumper Guards	OVERALL DIMENSIONS (In.) Width	OVERALL DIMENSIONS (In.) Height—Road to Roof, No Load	Tires (In.)	Oil Pressure to—	Carburetors—No. Used and Type	Cooling System	Shifting Method	No. of Forward Speeds	Final Drive Type	Gear Ratio (To —1)	Torque Taken By	Independent Suspension	Service Brakes	Shipping Weight (Lb.)
ITALIAN—*continued*																												
Fiat 500C	4-2.05x2.84	16-4400	34.8	6.45	IL	I	AA	C		78.8	44.0	42.7	129.0	50.6	54.1	4.25/15	abc	1-Do	TS	HS	4	SB	4.87	Sp	Fr	H	1345
1100E	4-2.68x2.96	35-4400	66.5	6.10	IL	I	AA	C		95.4	48.5	48.4	161.5	59.3	59.1	5.00/15	abc	1-SD	TS	HS	4	SB	4.67	Sp	Fr	H	2071
1400	4-3.23x2.60	44-4400	85.0	6.70	IL	I	AA	C		104.2	52.2	52.0	167.0	65.1	61.1	5.90/14	abc	1-SD	P	HS	4	Hy	4.44	Sp	Fr	H	2491
Campagnola 4x4	4-3.23x3.54	84-2400	116.0	6.70	IL	I	AA	C		88.6	49.4	49.6	143.3	58.3	76.6	6.40/16	abcde	1-Do	P	HS	4	Hy	4.44	Sp	Fr	H	2822
Lancia Ardea	4-2.58x2.68	30-4600	55.0	6.70	V	I	AA	C		82.5	45.8	48.5	142.2	54.2	59.5	5.00/15	abc	1-	P	HS	5	Hy	5.30		Fr	H	
Aurelia	6-2.76x3.00	56-4000	107.0	6.85	V	I	AA	C		112.5	50.5	51.2	174.0	61.5	59.0	5.50/16	abc	1-	P	HS	4	SB	4.90		FR	H	
B20	6-2.76x3.21	75-4500	121.5	6.40	V	I	AA	C		104.7	50.3	51.1	168.5	60.5	55.0	4.00/16	abc	2-SD	P	HS	4	Hy	4.37	TA	FR	H	1975
B21	6-2.76x3.21	70-4500	121.5	7.00	V	I	AA	C		112.5	50.3	51.1	174.0	60.5	59.0	4.00/16	abc	1-DD	P	HS	4	Hy	4.70	TA	FR	H	2125
B50	6-2.76x2.99	56-4000	107.0	6.80	V	I	AA	C		114.5	50.3	51.1	161.0	57.5		4.00/16	abc	1-DD	P	HS	4	Hy	4.88	TA	FR	H	1525
B51	6-2.76x2.99	55-4000	107.0	6.80	V	I	AA	C		114.5	51.1	52.0	161.0	57.5		4.00/16	abc	1-DD	P	HS	4	Hy	5.22	TA	FR	H	1550
Maserati A6G/2000	6-2.83x3.15	100-5550	119.2							100.3	50.1	49.2				5.50/16		3-			4		4.22		Fr	H	2205
JAPANESE▲																												
Datsun Wagonette		20	52.5							84.7	41.3	46.5	149.0	59.1	58.7	5.50/15					3	Wo				H	2250
Deluxe Sedan		20	52.5							84.7	41.3	46.5	144.4	58.3	60.0	5.50/15					3	Wo				H	1980
Thrift Sedan		20	52.5							84.7	41.3	46.5	147.8	61.3	60.5	5.50/15					3	Wo				H	1980
Station Wagon		20	52.5							78.9	40.9	46.5	141.7	55.9	61.5	5.00/16					3	Wo				M	1720
Ohta PA		20-4000	46.4							82.7	41.6	41.7	151.0	58.3	62.2	5.00/16					3	SB	6.50			H	1764
PB	4-2.40x3.00	23-4000	55.1	6.50		L				86.6	47.2	47.2	152.6	58.0	61.0	5.00/16		1-Do	P		3	SB	6.50			H	1874
VC	4-2.40x3.00	23-4000	55.1	6.50		L				86.6	47.2	47.2	159.5	59.6	65.0	5.00/16		1-Do	P		3	SB	6.50			H	2094
Toyopet SB		27-4000	60.7							94.5	52.2	53.2	167.3	62.2	66.9	6.50/16					4	SB	7.16			H	2326
SD										95.0	51.8	52.8	118.2														1296
SA		27-4000	60.7							94.5	51.2	53.2	151.6	63.0	62.6	5.00/16				HS	3	SB	5.83		FR	H	2579
SPANISH																												
Pegaso Z-102	8-2.95x2.76		150.7	8.00	V	I	AA	HG		92.1	51.9	50.7	163.0	64.5	62.4	5.50/18	abc	1-DD	P	HS	5	SB	4.18	TA	Fr	H	2822
SWEDISH																												
Svenska 92	2-3.15x2.99	25-3800	46.6	6.60	IL	N	AA	N		97.2	46.4	46.4	155.5	53.7	57.0	5.00/15	N	1-SD	TS	HS	3	SB		TA	FR	H	1929
Volvo PV-444-C	4-2.95x3.15	44-4000	86.0	6.40	IL	I	AA	HG		102.3	50.9	51.7	177.0	62.0	65.0	5.90/15	abc	1-SD	P	HS	3	Hy	4.56	TA	Fr	H	1996
PV-831-832	6-3.31x4.33	90-3600	223.8	6.50	IL	L	AA	C		127.9	59.2	60.0	205.0	73.0	70.0	7.00/15	abc	1-SD	P	HS	3	Hy	4.45	Sp	N	H	3781

ABBREVIATIONS

†—Alternate engine and axle ratios available.
‡—Front wheel drive.
*—Export.
▲—Chassis only.
▲—Courtesy of Society of Automotive Engineers of Japan, Inc.
▲▲—Supercharged.
(aa)—Front, 5.00/17, rear, 6.50/16.
(bb)—Front, 5.00/17, rear, 6.00/16.
a—Main bearings.
b—Connecting rod bearings.
c—Camshaft bearings.
d—Piston pins.
e—Chain or timing gears.
AA—Aluminum alloy.
AS—Aluminum alloy and steel strut.
AT—Alloy, tin plated.
AW—Alloy, wire wound.
BG—Bevel gear.
C—Chain.
CH—Chain and helical gear.
DD—Dual downdraft.
DI—Diesel injectors used.
Do—Downdraft.
DS—Double sleeve.
F—F head, valves in side and head.
FR—Front and rear.
Fr—Front.
H—Hydraulic.
HG—Helical gear.
HM—Hydraulic front, mechanical rear.
HO—Horizontally opposed.
Ho—Horizontal.
HP—Hand and preselected shift.
HS—Hand shift.
Hy—Hypoid.
I—I head, valves in head.
IL—In line.
L—L head, valves at side.
M—Mechanical.
MH—Mechanical and hydraulic.
N—No or none.
NA—Not available.
P—Pump.
Pr—Preselective.
R—Rear.
SB—Spiral bevel.
SD—Single throat downdraft.
SDR—Spiral bevel, double reduction.
SG—Spur gear.
Sh—Shaft.
SH—Single throat horizontal.
Sp—Springs.
ST—Single throat.
StB—Straight bevel.
SU—Single throat updraft.
TA—Torque arm.
TP—Thermo syphon and pump.
TS—Thermo syphon.
TT—Torque tube.
V—Vee type.
Up—Updraft.
VS—Vertical shaft.
Wo—Worm.

For Directory of the Manufacturers listed above, see page 338

Automobile Production in France, Italy and Belgium

FRENCH automobile production for 1951 totalled 446,760 vehicles of all types, this being an increase of 25 per cent over the previous year. The total was made up of 320,135 passenger cars, 2279 buses and coaches, and 123,824 trucks. Exports totalled 125,295 vehicles, of which 93,195 were passenger cars, 26,338 trucks, 1408 buses or coaches, and 4354 chassis, practically all of these being for utility vehicles.

Total ITALIAN automobile production increased 13.5 per cent in 1951, compared with the previous year, reaching 145,553, of which 119,267 were passenger cars, 24,607 were trucks of various types and 1679 were buses and coaches. The main increase was on passenger cars, trucks increasing to a smaller degree and coaches showing a drop.

Exports jumped 47.2 per cent, reaching a total of 32,250, of which 30,359 were passenger cars and 1891 trucks, coaches and buses. It is thus seen that of the total production the home market absorbed 113,303 automobiles and 32,250 were sent abroad.

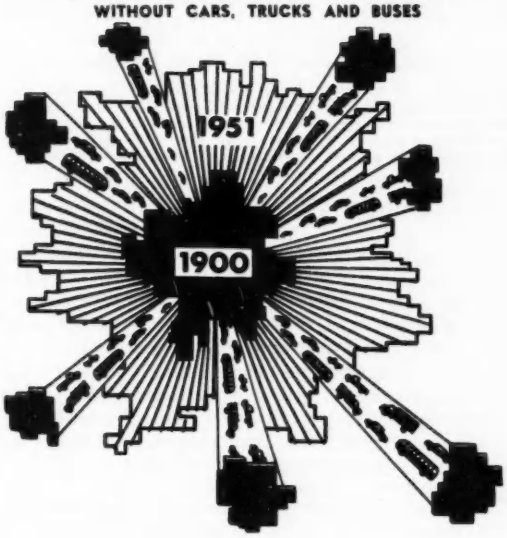
Imports and assemblies into BELGIUM have steadily increased since 1948, the total number of passenger cars for 1951 being 62,000, compared with 61,303 for the previous year. Trucks show a drop to 15,020, compared with 17,774 in 1950. The feature of the import figures is the growth of German business, which last year comprised 12,467 passenger cars and 1991 trucks, compared with only 1674 and 14 in 1948. Losses are shown by Great Britain, France and Italy, while American imports and assemblies have continued to increase and are still in the lead.

Motor Vehicles Are Vital to America's Defense Economy

MODERN Civilization is geared to motor vehicles, to such a degree today that without them the economies of many countries would collapse. Particularly is this true of the United States which has over 70 per cent of the world's vehicles. In a few score years they have transformed America into the world's greatest nation of commerce, industry and agriculture. Even other forms of transportation — rail, water, pipeline, and air — have become dependent upon highway transportation.

On these pages you will find documented and pertinent facts compiled from several authoritative sources by the Editors of AUTOMOTIVE INDUSTRIES. As will be seen motor vehicles are essential in sustaining the civilian and defense economies of our country, either in peace or in war. This article presents the facts in three parts, the first dealing with passenger cars, the second with trucks, and the third with buses, tractors, and our vast network of highways and streets.

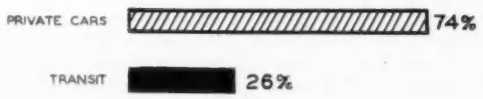
OUR "EXPLODED" CITIES COULD NOT EXIST WITHOUT CARS, TRUCKS AND BUSES



PART I
Passenger Cars

ON AN average day, half of all adults in the United States ride at least once in an automobile. The most frequent reason why people ride in autombiles is to get to work. Of the 59 million persons who rode in passenger cars during an average day, 22 million did so to get to their jobs, either part way or all of the way. This was 40 per cent of the total number of people employed in non-agricultural activities. A total of 5.5 million persons rode in cars in connection with their business, and 1.4 million used cars on the farm. Therefore, a total of 28.9 million persons who used automobiles did so either to get to work, to accomplish their work, or both. Shoping is the second most frequent reason why

Within the City the Automobile Accounts for Nearly Three-Quarters of Urban Vehicular Travel



2,074 U. S. CITIES HAVE NO PUBLIC TRANSIT SYSTEMS

people use cars, and on an average day 13 million adults drive to the store.

Trips connected with making a livelihood, including home-to-work transportation and use of the car on the job, account for 55 per cent of all driving. The addition of shopping trips raises the total to 68 per cent. Some 32 per cent of all driving is for other purposes, including not only recreational use of the vehicle but trips to the doctor, to church, and to school. Certain types of social and recreational use of the automobile are desirable, especially when worker morale, hence productivity, is closely related to the change of scene afforded by the family car. The proportion of what might be termed "necessity" driving, therefore, is much higher than that found in prewar surveys; and to the extent that these studies are comparable, one would expect the trend to be in that direction. The above data, prepared by the Brookings Institution for the Defense Transport Administration, describe the people who ride in cars.

Highway Transportation Is Essential to Tank Production

Motor vehicles are indispensable to America's defense. Of the 2000 suppliers, most of them ship their products to the Cadillac-Cleveland Tank Plant over the Nation's highways. Eighty per cent of the parts and materials needed to produce the T-41 Walker tank arrive at Cleveland by truck. It is also noteworthy that 73 per cent of the plant's workers use private passenger cars to get to the plant.

Turning now to the cars used on an average day, 75 per cent of all cars are driven for livelihood or shopping purposes; and during the course of a full week 92 per cent of all cars are used for such purposes. These facts have been revealed by the Automobile Manufacturers Association. Other pertinent AMA facts show that 575 million miles are driven daily in going to and from work or on business, about 45 per cent of all employed persons use a car in connection with their work, and millions of persons living in non-car-owning households depend on passenger cars for transportation.

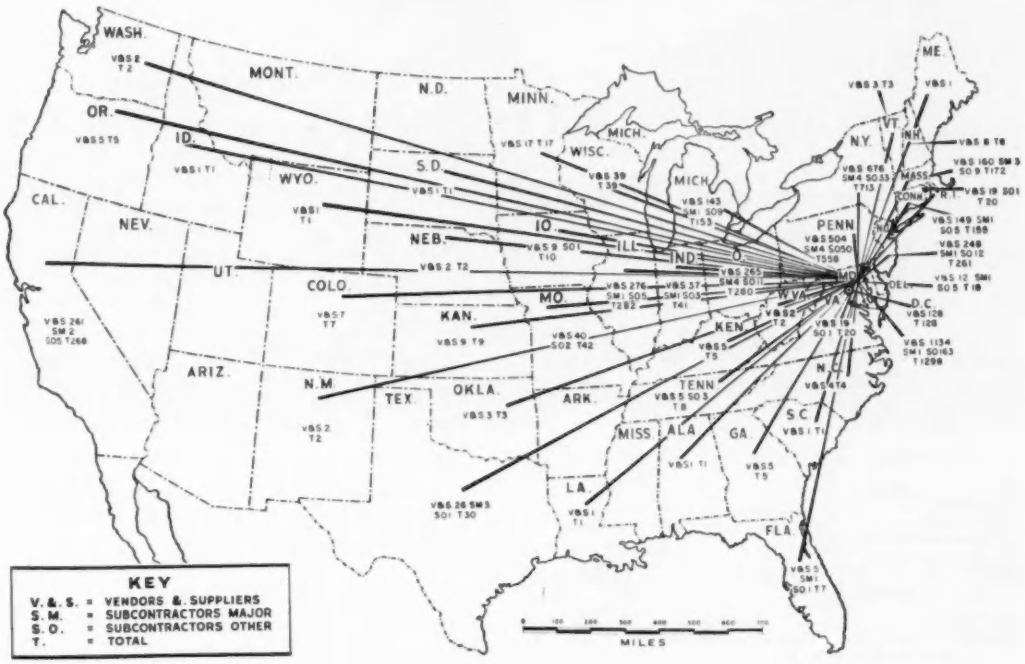
The number of persons driving to work varies widely among cities and states, and also among different plants in the same city. This was found in numerous studies made during World War II. In late 1942, for example, a Public Roads survey of 140,000 workers in 10 states showed that 73 per cent of all persons employed used automobiles to get to work; 15 per cent rode buses and streetcars; and 10 per cent walked. The other two per cent used bicycles or some other method. At only 12 plants were more than 25 per cent of the workers using public transportation, and all but two of these plants were in or adjacent to cities with a population of 100,000 or more.

One factor that should not be overlooked in any estimate of future requirements for passenger cars is the current accelerated decentralization of industry under the impetus of the Government policy of dispersing weapons factories throughout the country. Such dispersion, as we came to know in World War II, means almost total dependence of workers on private passenger cars for getting to and from work.

For example, in those plants that were erected in smaller cities or in the suburbs, nearly 100 per cent of the workers reached the plants by automobile.

In the Detroit area today, not a single major defense

Production of Our Fighting Planes Depends Upon Motor Vehicles



Location of Glenn L. Martin Co. subcontractors, vendors and suppliers is shown on this map.

Approximately 75 per cent of the material and parts supplied by these firms for the production of aircraft arrive at the Martin plant near Baltimore by truck. Sixty per cent of Martin outbound tonnage is by truck. Approximately 95 per cent of the Martin employees depend upon passenger cars to get to work.

plant is being erected within the city limits in range of public transit facilities. To the west about 20 miles, structural steel is rising for a new tank factory. Ten miles farther, an aircraft engine plant is nearing completion. Some 25 miles to the north, bulldozers are clearing a site for a jet-engine factory. While some workers will be recruited at or near the new factories, the bulk of the needed manpower will come from the Detroit area. And it will come via the rubber tired wheels of the workers' own cars.

According to the AMA, surveys by city traffic engineers in 35 cities ranging from those with less than 50,000 population up to those over 250,000, show that 74.1 per cent of the people travel by automobiles and 25.9 per cent by public transportation.

Recent surveys, concerning the mode of worker transportation utilized in reaching a defense plant, show that some 80 per cent of the workers arrive via private passenger car. The remainder either use public transportation or are within walking distance.

Evidence of this is given by reports from three major defense plants. At the Cadillac-Cleveland Tank Plant, outside Cleveland, Ohio, currently producing the T-41, about 5100 or 73 per cent of the 7000 employees get to work by automobile. Authorities at the Chrysler Delaware Tank Plant, Newark, Del., state that over 80 per cent of the workers utilize private cars to get to the plant. During three shifts, 6350 cars —carrying an average of 3.2 persons—park at the Glenn L. Martin Co. aircraft plant near Baltimore, Md. Thus, out of a total worker enrollment of 21,500, over 20,000 or 95 per cent depend on private passenger car transportation for getting to the Martin plant.

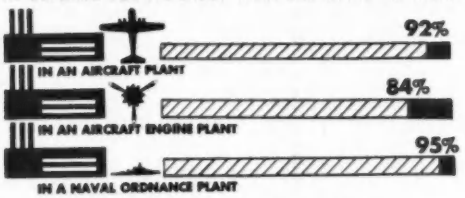
Currently there are approximately 42,550,000 private passenger cars in the United States, as compared with 29,240,417 in 1941. Numerically, we are much better off today than we were prior to Pearl Harbor. In age, however, today's transport fleet is far inferior to what it was in 1941.

Figures, prepared by AUTOMOTIVE INDUSTRIES, show that today's cars average 7.1 years of age, as compared with the 1941 average of only 5.3 years. About 17 million of the cars in the current passenger car fleet are over 10 years of age, leaving the nation with about 25,550,000 cars under the 10-year mark—this is only two million more than in 1941.

Scrappage estimates show that 519,767 passenger cars were taken off of the road in 1947—by 1949 the scrappage rate had more than tripled. In 1951 about 3,000,000 cars retired to the nation's scrap pile. Thus,

A tractor and truck team up to transport uranium ore. It is carried to the processing mills where refining extracts uranium and processes it into a black powder. After the powder is collected, it is shipped away for further secret processing.

IN DEFENSE PLANTS MOST WORKERS DRIVE TO WORK

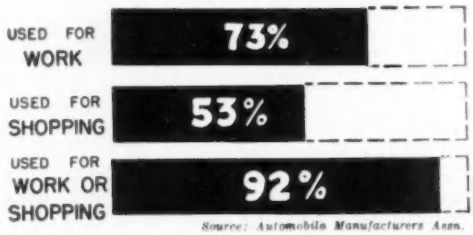


Percentage of workers driving to their jobs.

DEPENDENCE ON CARS INCREASES AS CITY SIZE DECREASES

Source: Automobile Manufacturers Assn.

92% OF CARS ARE USED EACH WEEK FOR WORK, SHOPPING OR BOTH



Source: Automobile Manufacturers Assn.

older cars are being scrapped at an increasing rate and it seems to be advisable to write them off in evaluating the strength of today's transportation pool.

The recent report made by the Brookings Institution points out: "The low average age of cars at the beginning of World War II was a tremendous aid in achieving extra years' service ultimately demanded of them."

The large number of overage cars in use today is in itself convincing testimony as to the degree people depend on their motor cars. It reflects, of course, the shortage of automobiles which was caused by the cut-off of production during World War II and which has not yet been fully alleviated.

One measure of the increase in the "need" for automobiles today compared to 1940 is the growth in the number of people who demand transportation services. In 1940 there were 132 million people in the United States, by 1950 the population was 150 million, an increase of 18 millions, or 14 per cent. By mid-1951 the population exceeded 154 millions.

While total population was increasing 14 per cent between 1940 and 1950, the number of consumer units increased by 24 per cent. The disproportionate growth in the number of spending units measures more accurately the demand for the family car than does population, since it reflects the need for transportation from home to work and for shopping or other household duties.

The geographic location of the nation's expanding population has given added weight to the influence of population growth on the expanding use of the automobile. During the decade of the forties, there was a disproportionate increase in the population of States which are more dependent on the automobile,

(*Turn to page* 484, *please*)

That's why 19 of the 20 makes of cars use one or more essential parts engineered and produced by BORG-WARNER

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THESE UNITS FORM BORG-WARNER, *Executive Offices, Chicago:* BORG & BECK • BORG-WARNER INTERNATIONAL
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FRANKLIN STEEL • INGERSOLL PRODUCTS • INGERSOLL STEEL • LONG MANUFACTURING • LONG MANUFACTURING CO., LTD. • MARBON
MARVEL-SCHEBLER PRODUCTS • MECHANICS UNIVERSAL JOINT • MORSE CHAIN • MORSE CHAIN CO., LTD.
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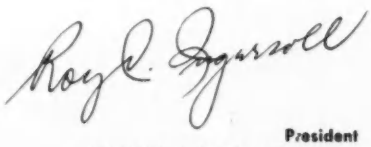
Tomorrow will show the same progress. That is why the American way of automotive production is the envy of all the world. Here is an industry that has never lost the spirit of youth . . . and it never will so long as the world's finest group of engineers dream new dreams, and translate them into such dynamic action.

Borg-Warner has truly grown up with the automotive industry and the automotive industry has developed hand in hand with Borg-Warner. We share your faith in the expanding future of this great industry which we have been privileged to serve so widely . . . for so many years.



President
BORG-WARNER CORPORATION

In 1900 —the old time mixing valve was replaced by SCHEBLER CARBURETERS.

In 1903 —The Spur type Differential was introduced by WARNER GEAR.

Radiators made of copper tubing with attached cooling fins introduced by LONG.

In 1913 —The Single Plate Clutch was developed by BORG & BECK and Silent Timing Chains were introduced by MORSE CHAIN.

In 1916 —Universal Joints were developed by MECHANICS.

In 1921 —First standard type Transmissions were introduced by WARNER GEAR.

In 1922 —Double Plate Clutches were introduced by LONG.

In 1923 —Multiple Spring Clutches developed by ROCKFORD.

In 1924 —Vibration Dampening Flexible Center Clutches introduced by BORG & BECK.

In 1930 —Transmission Synchronizer Units for Cars and Trucks produced by WARNER GEAR.

In 1931 —Roller Bearing Universal Joints were introduced by MECHANICS.

Free Wheeling was offered to the industry by WARNER GEAR.

Tapered Steel Discs for truck wheels were developed by INGERSOLL.

In 1934 —Automatic Overdrives for Transmissions were introduced by WARNER GEAR.

In 1938 —Borglite and Torbend Clutch Plates were introduced by BORG & BECK, LONG and ROCKFORD.

In 1939 —Ty-ply Rubber-to-Metal Bonding material developed by MARBON.

In 1949 —Automatic Transmissions were perfected by DETROIT GEAR and WARNER GEAR.

So it goes—year after year. Borg-Warner engineers cooperating with the engineers of all of America's producers of cars, buses and trucks help set new standards in automotive engineering. At the same time, Borg-Warner manufacturing facilities are delivering vast quantities of precision products to keep automotive assembly lines moving on schedule.

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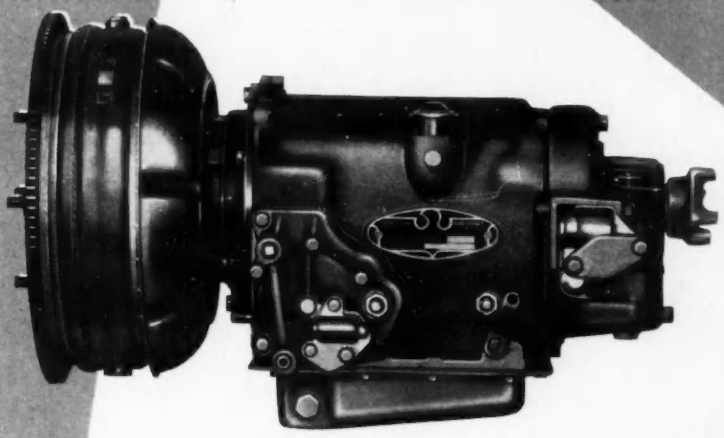

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- No creeping . . . no need to keep foot on the brake
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ENGINEERING B-W PRODUCTION

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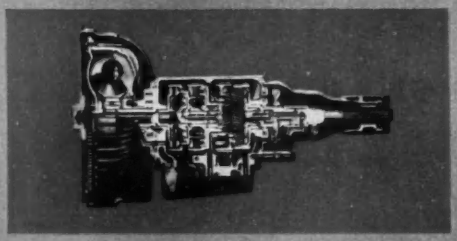
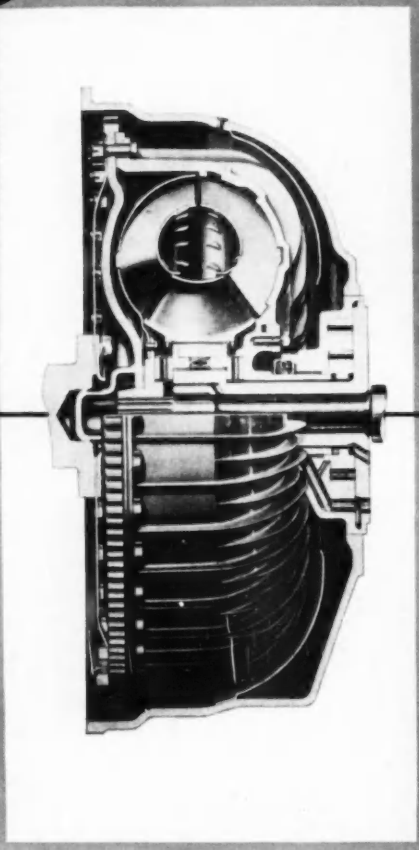


the new
BORG & BECK TORQUE CONVERTER

used in Fordomatic and Merc-O-Matic transmissions



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The Turbine is made of steel stampings and the Stator is aluminum. Its One-Way 18 sprag clutch is Borg-Warner's well-proved design.

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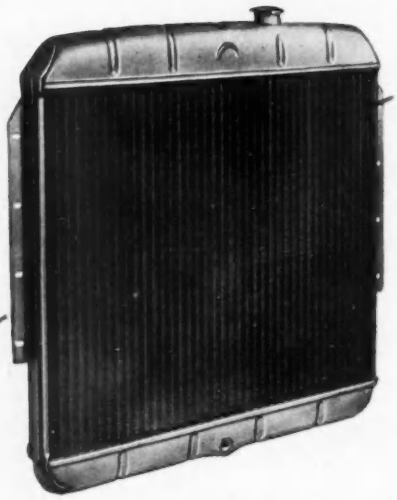
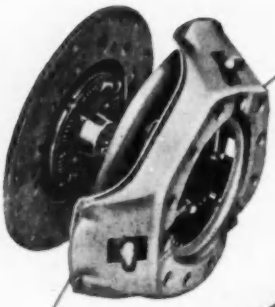
Automobile body stampings . . . tail gate assemblies . . . fenders . . . door assemblies . . . stampings for automatic transmissions . . . clutch covers . . . clutch levers . . . clutch plates . . . tapered discs for truck wheels.

Also, heat treated parts such as stabilizer bars and bumper bar supports.

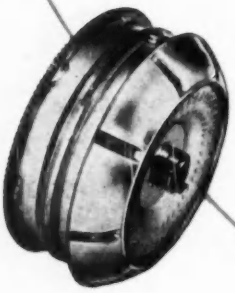
ENGINEERING B-W PRODUCTION

Ingersoll PRODUCTS DIVISION
Borg-Warner Corporation
310 South Michigan Avenue • Chicago 4, Illinois
Plants: Kalamazoo, Mich.; Chicago, Ill.





Versatility



We've been a part of the automotive industry since its start. A half-century of production has given us our share of experience.

Our engineers have the ability and vision to "see" the answers to design problems. Our manufacturing flexibility permits quick translation of these answers into finished units.

LONG MANUFACTURING DIVISION

BORG-WARNER CORPORATION

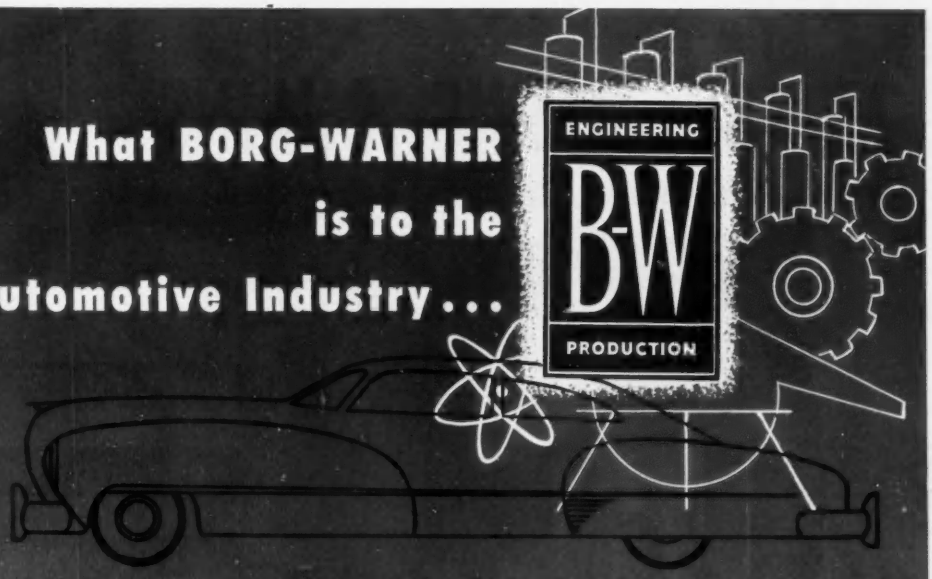
DETROIT 12, and WINDSOR, ONT.

ENGINEERING B-W PRODUCTION

LONG

CLUTCHES • RADIATORS • TORQUE CONVERTERS
OIL COOLERS

What BORG-WARNER is to the Automotive Industry...



TY·PLY

is to RUBBER-to-METAL ADHESIVES

WHY it pays for you to include TY-PLY in your bonded Natural and Synthetic Rubber Specifications

1. **SAVES TIME** - (Only one coat is required)
2. **SAVES LABOR** - (Simple application gives uniform bond of high tensile strength)
3. **SAVES MONEY** - (Costs approximately 1 cent per square foot of bonded area)

TY-PLY will adhere most vulcanizable rubber compounds to almost any clean metal surface.

Marbon

MARBON CORP.

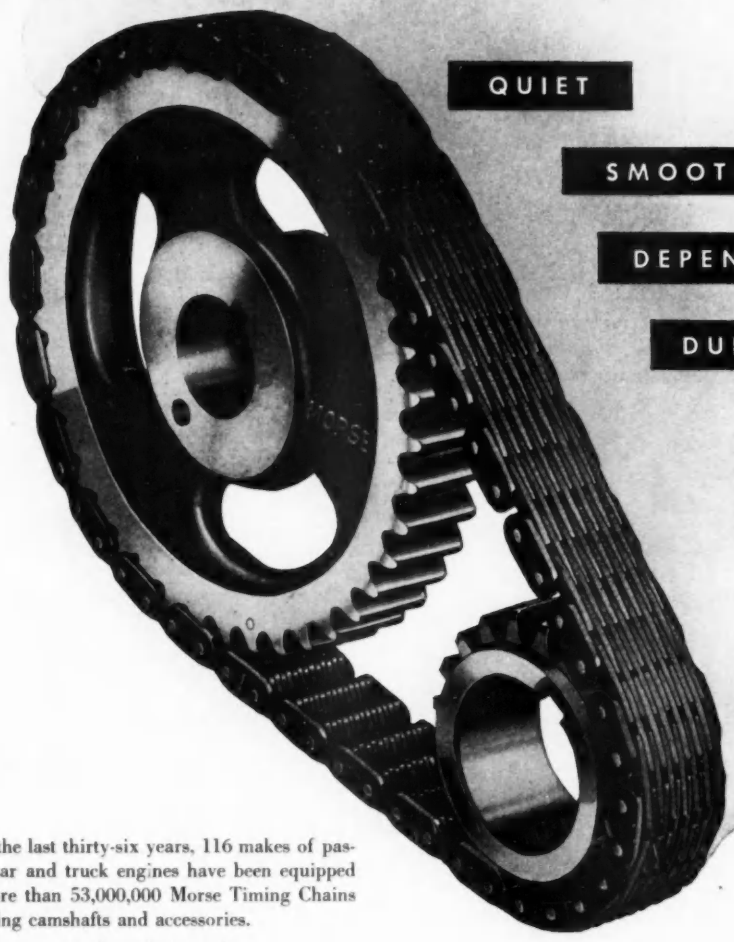
GARY, INDIANA

SUBSIDIARY OF BORG-WARNER

TY-PLY has stood the test of time . . . . since '39

MORSE TIMING CHAINS

THE ORIGINAL EQUIPMENT LINE . . .



QUIET

SMOOTH

DEPENDABLE

DURABLE

During the last thirty-six years, 116 makes of passenger car and truck engines have been equipped with more than 53,000,000 Morse Timing Chains for driving camshafts and accessories.

Distributed Through

BORG-WARNER SERVICE PARTS CORP.

MORSE CHAIN COMPANY

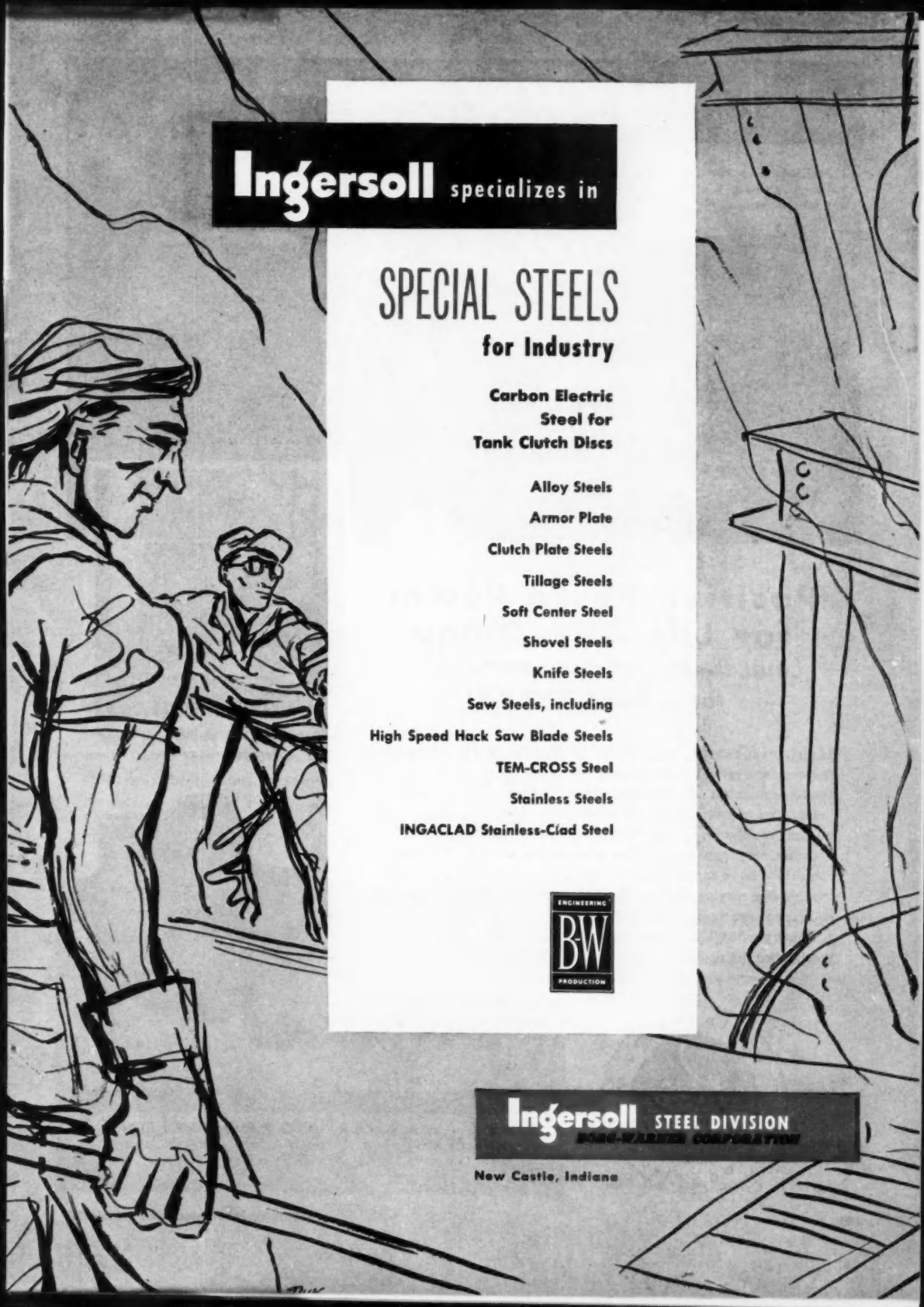
DETROIT 10, MICHIGAN

MORSE

MECHANICAL

POWER TRANSMISSION

PRODUCTS



Ingersoll specializes in

SPECIAL STEELS
for Industry

Carbon Electric Steel for Tank Clutch Discs

Alloy Steels

Armor Plate

Clutch Plate Steels

Tillage Steels

Soft Center Steel

Shovel Steels

Knife Steels

Saw Steels, including
High Speed Hack Saw Blade Steels

TEM-CROSS Steel

Stainless Steels

INGACLAD Stainless-Clad Steel

ENGINEERING B-W PRODUCTION

Ingersoll STEEL DIVISION
BORG-WARNER CORPORATION

New Castle, Indiana

Another Job for Pesco HYDRAULIC MUSCLES

BW

Hough Model HF PAYLOADER lifts awkward chunks of concrete in confined quarters with sure, positive control.

Positive Pesco Power for Lift, Tilt, Dump

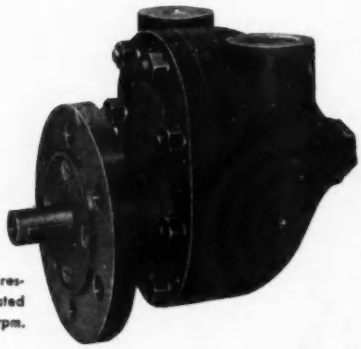
makes close-quarter work easy for a PAYLOADER®

High, sure lifts are made possible by the rugged Pesco hydraulic pump.

Hough PAYLOADERS, well known for their versatile, dependable performance rely on a small Pesco hydraulic pump as the heart of the hydraulic bucket control system. Power to spare is always on hand. The minute power is needed to dump, lift or tilt the bucket, it's there . . . right at the operators' finger tips.

Countless pumps on countless jobs, serving in all kinds of rugged conditions have made Pesco pumps famous for their dependable, trouble-free service. Behind the dependability of Pesco hydraulic equipment are years of research and practical know-how.

This knowledge can be of benefit to you. Write today stating your hydraulic problems. We will be glad to help.



Hydraulic pump Model 051006, gear type, pressure loaded with positive displacement. Rated capacity; 15 gpm at 1000 psi and 1200 rpm.

engineering Pesco production

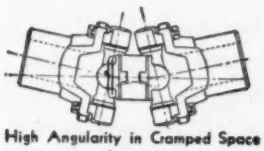
PRODUCTS DIVISION

BORG-WARNER CORPORATION

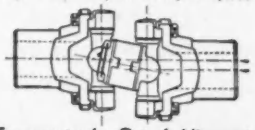
24700 NORTH MILES ROAD • BEDFORD, OHIO

if SIZE is your problem

MECHANICS close-coupled type Roller Bearing UNIVERSAL JOINTS are specially designed for operation within cramped quarters, and where shafts are out of alignment — as in rear engine cars, trucks and busses. Let our engineers show you how these MECHANICS joints will conserve space and compensate for offset shafts, in your new models. These joints fit into spaces that engineers formerly considered too short for universal joints.



High Angularity in Cramped Space



Compensates for Out of Alignment

Let our engineers show you how MECHANICS close-coupled Roller Bearing UNIVERSAL JOINTS will conserve space and compensate for offset shafts, in your new and improved models.

MECHANICS
Roller Bearing
UNIVERSAL JOINTS

For Cars, Trucks, Tractors, Farm Implements, Road Machinery, Industrial Equipment, Aircraft

MECHANICS UNIVERSAL JOINT DIVISION

Borg-Warner

2024 Harrison Ave., Rockford, Ill.

CONTROL POWER BETTER

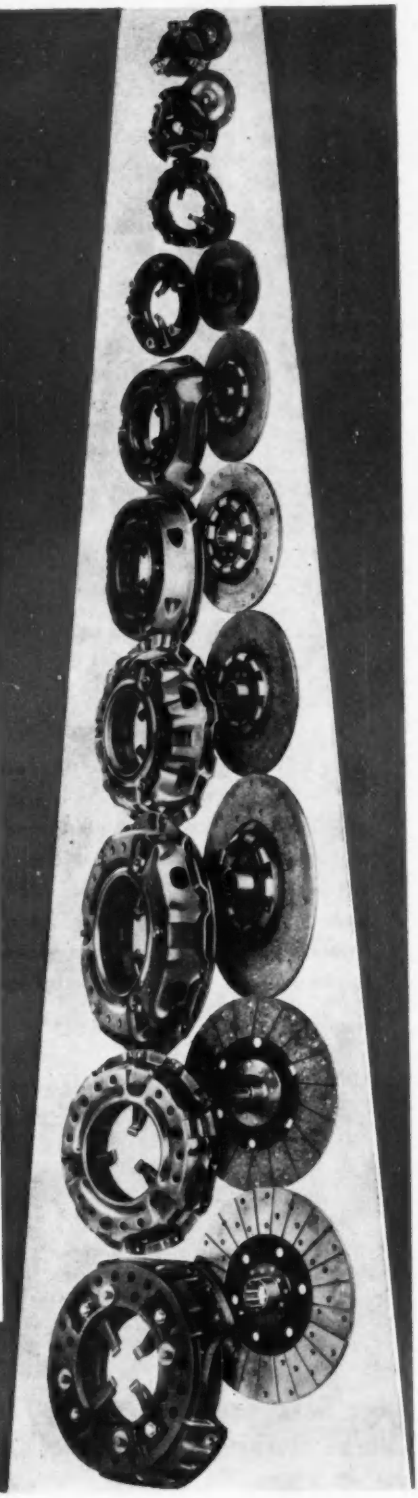
Serving Thru a Wide Range of Sizes

For the *smallest* to the *largest* automotive or industrial requirement there is a ROCKFORD CLUTCH that meets every need exactly. Over a quarter of a century of clutch building experience assures customer satisfaction, when ROCKFORD CLUTCHES are specified.

Get the RIGHT Clutch for YOUR Need

There is no one stock answer to every power transmission control problem. That is why ROCKFORD clutch engineers can be of practical help in designing applications that will increase automotive manufacturers' product efficiency — make substantial savings in cost and reduce servicing down-time. Send a print or description of your need for their recommendations, based on the extensive ROCKFORD line of clutches, power take-offs and speed reducers.

ROCKFORD CLUTCH DIVISION
BORG-WARNER
315 Catherine Street, Rockford, Illinois



ROCKFORD CLUTCHES

FOR MORE THAN 40 YEARS

a dependable and experienced source for manufacturer and jobber

• AXLE SHAFTS • TRANSMISSION GEARS •

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WARNER AUTOMOTIVE PARTS

a division of Borg-Warner Corporation B-W Auburn, Indiana • Detroit, Michigan

19 of the 24 Borg-Warner Divisions produce for the Automotive Industry

19 of the 20 makes of Passenger Cars are equipped with one or more *BORG-WARNER* products

BORG & BECK—Clutches and Torque Converters for Passenger Cars, Trucks and Tractors.

CALUMET STEEL—Structural Tubing and Special Automobile Jack Bar Steel; Small Angles for Auto Seats, and Merchant Bars.

DETROIT GEAR—Automatic Transmissions for Passenger Cars; Truck and Bus Transmissions; Gear and Precision Parts for Passenger Cars, Trucks and Aircraft.

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INGERSOLL STEEL—Automotive and Tractor Clutch Discs; Carbon Electric Steel for Tank Clutch Plates; High Carbon and Alloy Steel Sheets; Stainless and Stainless Clad Sheets and Armor Plate.

LONG MANUFACTURING—Clutches and Radiators for Passenger Cars, Trucks, Buses and Tractors; Torque Converters; Oil Coolers for the Automotive Industry.

LONG MANUFACTURING, LTD.—(Canada) Clutches and Radiators for Passenger Cars, Trucks, Buses and Tractors; Oil Coolers for the Automotive Industry.

MARBON—Adhesives for Bonding Rubber and Synthetic Rubber to Metal and other Materials. (Trade Name Ty-Ply)

MARVEL-SCHEBLER PRODUCTS—Carburetors for Automobiles, Trucks, Tractors, Airplanes, Motorcycles, Marine and Industrial Engines.

MECHANICS UNIVERSAL JOINT—Universal Joints and Propeller Shafts for Passenger Cars, Trucks, Buses, Aircraft, Farm Machinery, Tractors, Road Machinery and Mining Machinery.

MORSE CHAIN—Automotive Timing Chains and Sprockets.

MORSE CHAIN, LTD.—(England). Automotive Timing Chains and Sprockets.

PESCO PRODUCTS—Superchargers for Trucks, Buses and Heavy Duty Equipment; Hydraulics for Lift and Dump Trucks.

ROCKFORD CLUTCH—Truck, Tractor and Agricultural Implement Clutches; Industrial Clutches for Construction Machinery, Oil Field Machinery, Machine Tools, etc.; Power Take-Offs for Gasoline and Diesel Engines.

SPRING DIVISION—Automobile Clutch and Valve Springs; Multi-Slide and Punch Press Stampings, plain and heat treated; Special Clutch Plates and Parts for Automatic Transmissions, Torque Converter Parts and Sub-Assemblies; Sprag-Type Free Wheeling Clutches; Precision Flat and Belleville-type Springs; Small Electric Motor Commutators.

WARNER AUTOMOTIVE PARTS—For Replacement Purposes—Ring Gears and Pinions; Differential Cases; Differential Internal Gears and Spiders; Axle Shafts; Cast Iron Parts; Transmission Gears for Passenger Cars, Trucks and Tractors; Power Take-Offs.

WARNER GEAR—Automatic Transmissions for Passenger Cars; Standard Transmissions for Cars, Trucks, Taxicabs, Buses and Tractors; Overdrive Units for Passenger Cars; Transfer Transmissions for Trucks; Synchronizer Units for Passenger Cars and Trucks; Parking Brake Assemblies.

WARNER GEAR, LTD.—(Canada). Synchronizer Units.

Two other Borg-Warner Divisions serve in Automotive Parts Distribution: **BORG-WARNER INTERNATIONAL**—Export Sales of Automotive Parts. **BORG-WARNER SERVICE PARTS**—U. S. Distribution of Automotive Service Parts.

ENGINEERING B-W PRODUCTION

Engineering makes it work
Production makes it available

B-W

Testing Requirements for Military Vehicles

By H. H. D. Heiberg
Colonel, Army Field Forces
Research and Development Section
Fort Monroe, Va.

THE general procedure in the development of a piece of equipment for the field army starts with a statement of military requirement for such equipment, which anyone may originate. When it is determined that such a military requirement does exist then an appropriate Army Field Forces Board is directed to prepare Military Characteristics. These M/C's, as we call them, state in non-technical terms the performance characteristics desired in the equipment and are not technical specifications from which a model can be built. For example, one of the performance characteristics for the 2½-ton truck reads, "Capable of operation with 5000-lb payload and with 6000-lb towed load, over unimproved roads, trails, and open rolling and hilly cross country, in arctic, temperate and tropical zones; and with 10,000-lb payload and 10,000-lb towed load, over prepared roads." Another characteristic states, simply, "Power train design shall provide the maximum practicable ease in gearshifting." Of the two makes of trucks built to these characteristics which have been tested, one employs a synchromesh and the other an automatic transmission.

Following coordination with interested field agencies and review by the Chief of Army Field Forces, these Military Characteristics are submitted through the Department of the Army to the appropriate technical service for action. The first action is normally a conference between board and technical service representatives to arrive at a workable solution to the M/C's. This usually results in compromises based principally on technical and production considerations. Technical committee action follows and a project for this particular piece of equipment is established. Throughout the design, mock up and pilot model production stages, the board acting as AFF Liaison with the developing agency keeps in touch with the progress of development and assists with suggestions to make the end item suitable for field service.

Pilot models when completed are submitted to the developing agency for engineering tests and to the appropriate Army Field Forces Board for service tests.

Army Field Forces Board No. 2 at Fort Knox, Ky., is assigned responsibility for, among other items, all automotive equipment of the field army, including amphibious vehicles and wheeled and track laying armored combat vehicles.

Located on the post at Fort Knox is a 3500 acre testing area which is reserved exclusively for the board and here is located a field maintenance shop. This permits the routine maintenance and repair of heavy equipment without removing it from the test area. Within, or adjacent to, this area are cross country courses, mud pits, a 60 per cent dirt slope, Otter Creek (for fording) and other natural test facilities. Ranges and paved and dirt roads are available elsewhere on the reservation for test purposes and wheeled vehicles frequently operate on state and county roads outside the reservation.

When a test project is set up on any piece of equipment, the first step is to prepare a plan of test and circulate it to interested agencies for comment or concurrence. In general, the performance testing of equipment is done under as nearly uniform conditions as possible in order to form a basis of comparison with former records of test of similar equipment. Since these are user tests, however, performed in the field and not under laboratory conditions, many variables exist which cannot be properly evaluated. Hence, the use of comparative or control items of equipment has been adopted. For example, when the new 2½-ton trucks came to Board 2 for test, a number of reconditioned standard World War II 2½-ton trucks were included in the fleet so that old and new types underwent the same tests. Even crews are rotated among vehicles to equalize the effects of individual operational idiosyncrasies. Thus the new vehicle is compared to its proven, standard counterpart under identical conditions. This practice is deviated from in the interests of economy of manpower and equipment, during the endurance phase of the testing when thousands of miles of operation are accumulated. Automotive testing of a typical truck comprises 18 tests.

Vehicle Characteristics

Purpose: To determine the physical characteristics of the test vehicle and to study those characteristics which differ materially from the characteristics of the control vehicle.

Method: Both test vehicle and control vehicle will

(*Turn to page* 450, *please*)

NEW TEN-TON CARGO CARRIER Designed and built at the Detroit Arsenal, this unique Model 51 Truck-tractor features a body design of extremely light weight in proportion to its load carrying capacity. Front and rear axles operate as independent unit for fuel articulation. South Wind "winterized"—a "978" heater keeps frost off the windshield . . . freezing cold outside the cab.

NEW REO "EAGER BEAVER" Army's newest six-by-six . . . 2½ ton heavy duty utility vehicle and cargo carrier. Can travel up 60° grades or under water. A South Wind "978" defrosts windshield, keeps cab and personnel warm.

NEW "ACK-ACK" GUN CARRIAGE Mounts twin 40 mm. anti-aircraft guns. Equipped with two South Wind "978's." One for personnel heating inside, and one in the gun turret to heat the turret components.

NOW...ARMY GETS "TROPIC" HEAT AMID "ARCTIC" COLD

Amazing New Military Heater Keeps Vehicles Warm Even at 70 Below!

Hard to imagine! The mid-summer, tropic heat inside these new military vehicles while outside temperatures range from 30 to 70 degrees below. And yet it's true. The result of a revolutionary new heater—the South Wind "978."

Simplified in design. Compact. This rugged forced air heater preheats, heats and defrosts in any type of military vehicle—in temperatures as low as 70° below zero. Dependably safe because the combustion air system is completely separated from the ventilating air stream. Always fast acting because warm air circulation doesn't depend on engine heat.

Built to Army Ordnance specifications, the "978" has been widely accepted by the Army for its winterization program. And because of its many exclusive advantages, promises to be influential in guiding future designs for commercial car heating, too.

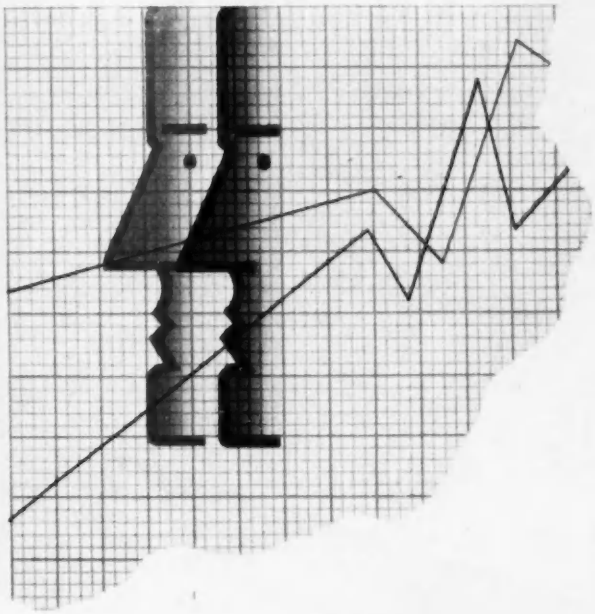
REMEMBER: This is the only heating equipment available that meets winterization specifications for Ordnance vehicles. Write or call for information regarding your requirements. Get the experienced counsel of trained South Wind engineers. Address: Stewart-Warner Corp., Dept. E-82, South Wind Division, 1514 Drover Street, Indianapolis, Indiana.

STEWART-WARNER

PERSONNEL HEATING *South Wind*
ENGINE AND EQUIPMENT PRE-HEATING
WINDSHIELD DEFROSTING

EQUIPMENT UNITS THAT BESPEAK QUALITY

TWO SPECIALISTS ARE BETTER THAN ONE



Working hand in hand with more than 300 automotive manufacturers, AC has developed 23 kinds of quality equipment units for their use.

This great body of experience and know-how is at your service, too. Just write to or 'phone the nearest AC office, listed below for your convenience.

ADAPTERS (Drive) AIR CLEANERS AIR CLEANERS AND SILENCERS (Combination) AMMETERS BREATHERS (Crankcase) CAPS (Radiator Pressure) FLEXIBLE SHAFT ASSEMBLIES FUEL PUMPS FUEL AND VACUUM PUMPS (Combination) FUEL FILTERS & STRAINERS GASOLINE STRAINERS GAUGES—AIR (Pressure) GAUGES—GASOLINE GAUGES—OIL (Pressure) GAUGES—TEMPERATURE (Water, Oil) OIL FILTERS (Lube) PANELS (Instrument) SPARK PLUGS SPEEDOMETERS TACHOMETERS TERMINALS (Ignition Wire) VALVES (Crankcase Ventilation)

AC

QUALITY PRODUCTS

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AC SPARK PLUG DIVISION GM GENERAL MOTORS CORPORATION

"ACOUSTACOIL"

New over-all flock finish soundproofs and prevents rust.

New simplified foundation for the support of coils

Combines new type tubular frames with coils and foundation

New grille top and special undercut for extra toe-room

Double flat border wire assures comfort under knees

- **Being installed as original equipment in cars of leading make!**
- **Hailed by seating engineers as the last word in luxury at lowest cost!**
- **Amazingly simplified design that saves greatly on critical materials!**
- **Easier to upholster and install on production line; lighter; stronger.**

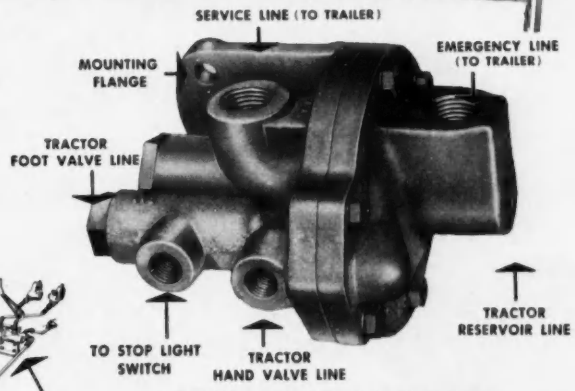
L. A. YOUNG SPRING & WIRE CORPORATION

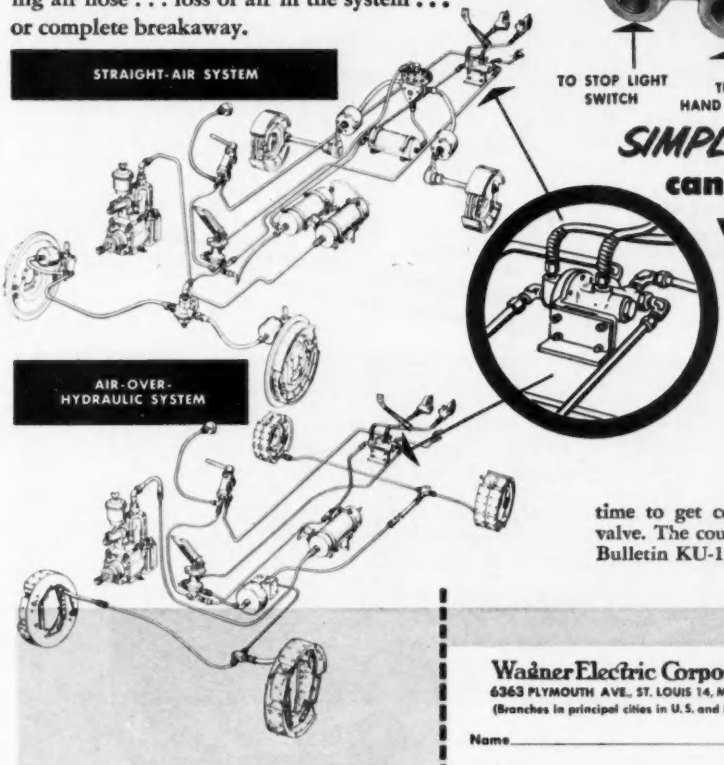
New Wagner Air Brake Safety Valve

gives tractor BREAKAWAY protection...

Here is the newest addition to the Wagner line of safe braking equipment for the trucking industry—a safety valve that automatically seals the tractor air system when the trailer is uncoupled.

This valve provides protection to costly rolling stock by preventing damages caused by—improper glad-hand connection . . . leaking air hose . . . loss of air in the system . . . or complete breakaway.





SIMPLE TO MOUNT— can be applied to *all* vehicles equipped with air brakes

A few easy-to-make connections, and the Wagner Tractor Breakaway Valve becomes part of the air brake system. It provides service and emergency air line outlets, and replaces the two shut-off cocks formerly mounted on the truck chassis behind the cab. Now is the time to get complete information on this new valve. The coupon below will bring you copy of Bulletin KU-153. Mail it today.

Wagner Products Serve the Automotive and Electrical Industries

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID
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We operate_____ Vehicles
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K52-13

when alarm bells ring...

you can count on
BLOOD BROTHERS ***Propeller Shafts***

On equipment like this, a breakdown could mean disaster. So The Seagrave Corporation, builders of great fire-fighting apparatus, selects every component with the utmost of vigilant care.

It's significant that Blood Brothers Universal Joints and Propeller Shafts are chosen for this — and other emergency equipment — where dependability ranks first in importance.

If your requirements are exacting, too, contact Blood Brothers. An engineering conference may prove well worth while. No obligation.

BLOOD BROTHERS machine co. ALLEGAN, MICHIGAN
UNIVERSAL JOINTS AND DRIVE LINE ASSEMBLIES

Division of Standard Steel Spring Company • Chicago Office: Great Lakes Spring Division, 7035 West 65th Street

by any gage – TOP VALUE!

TOP VALUE FEATURES

- Exclusive T-shaped ball separator maintains perfect concentricity—eliminates eccentric thrust, excessive wear—prolongs life.
- Factory packed for life with the best lubricant known. Lubricant can't escape to clutch facings, never needs replenishment. No grease fittings or oil lines needed.
- Balls retained in oil-impregnated separator—provides the extra lubrication, smoothness, quietness and durability of bronze-to-steel contact.

By any standard the Aetna T Type bearing measures up as the better-in-every-way bearing for the clutch release position. Its record speaks for itself—18 consecutive years of design leadership, today's 1st choice as standard equipment for the majority of the Nation's foremost mobile vehicles.

The quality and unique features that made this record possible can play a part in improving YOUR cars, trucks and tractors, too. Write for details.

Aetna

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AETNA BALL AND ROLLER BEARING COMPANY
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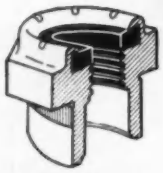
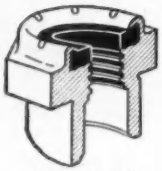
IN DETROIT—SAM T. KELLER, 2457 WOODWARD AVE.

ANCHORED *Forever*

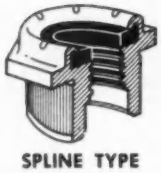
. . . OR RELEASED IN AN INSTANT



CLINCH TYPE

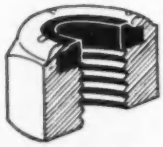


INSTRUMENT MOUNTING



SPLINE TYPE

THIN TYPE



STANDARD

Assembly is simplified . . . fastener failure eliminated. GREER STOP NUTS hold firm against jolts, shocks, shimmy, wobbles . . . any vibration, of any kind. Trustworthy, dependable under severest conditions.

Bolt threads are gripped tightly . . . these famous nuts *never* work loose. Yet an ordinary hand wrench gives instant release. The tough, built-in GREERCOID collar does it . . . and seals against fluid leakage, too!

Consult GREER for complete line. Over 3000 types and sizes. Proved on hundreds of products. Meets government and military specifications.

FOR INFORMATION WRITE:

GREER STOP NUT COMPANY

2618 W. Flournoy Street — Chicago 12, Illinois

GREER STOP NUTS

When the earliest oxcart creaked and groaned its way in man's most ancient effort at wheel transportation, the driver who shouted the primitive equivalent of "gee" and "haw" had the benefit of power steering. For, he only guided the oxen with his voice or whip—the animals supplied the power for turning.

These days about all we see of the ox is the hamburg in the corner joint, but in taking the animal out of transportation we have loaded part of its work on the drivers of trucks and other vehicles. In trucks without power steering, the driver's muscles have to supply the turning effort. The power must come from his arms, shoulders and back.

Is it progress when we build vehicles that require more physical effort to steer than oxcarts? No wonder drivers tire and become less efficient—lose the fresh alertness that assures safety.

Vickers Hydraulic Power Steering is much better than the ox because you don't have to yell at it or beat it. It takes the work out of steering . . . requires little more effort than a wave of the hand. Wheeling a truck around is so much less tiresome that the driver remains fresh, efficient, safe. For further information, ask for Bulletin M-5100.

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POWER STEERING
Is Effortless, Positive and Shockless

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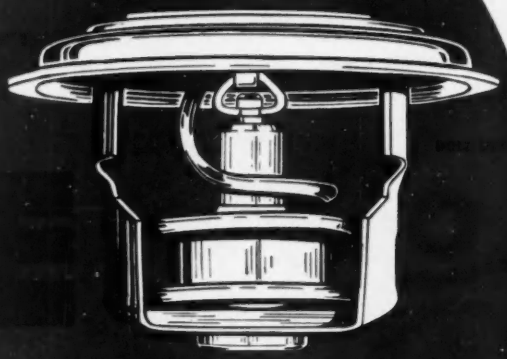

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"DV" Thermostats

Dole Thermostats are available in various sizes and models to meet all installation requirements.

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CONTROL WITH DOLE

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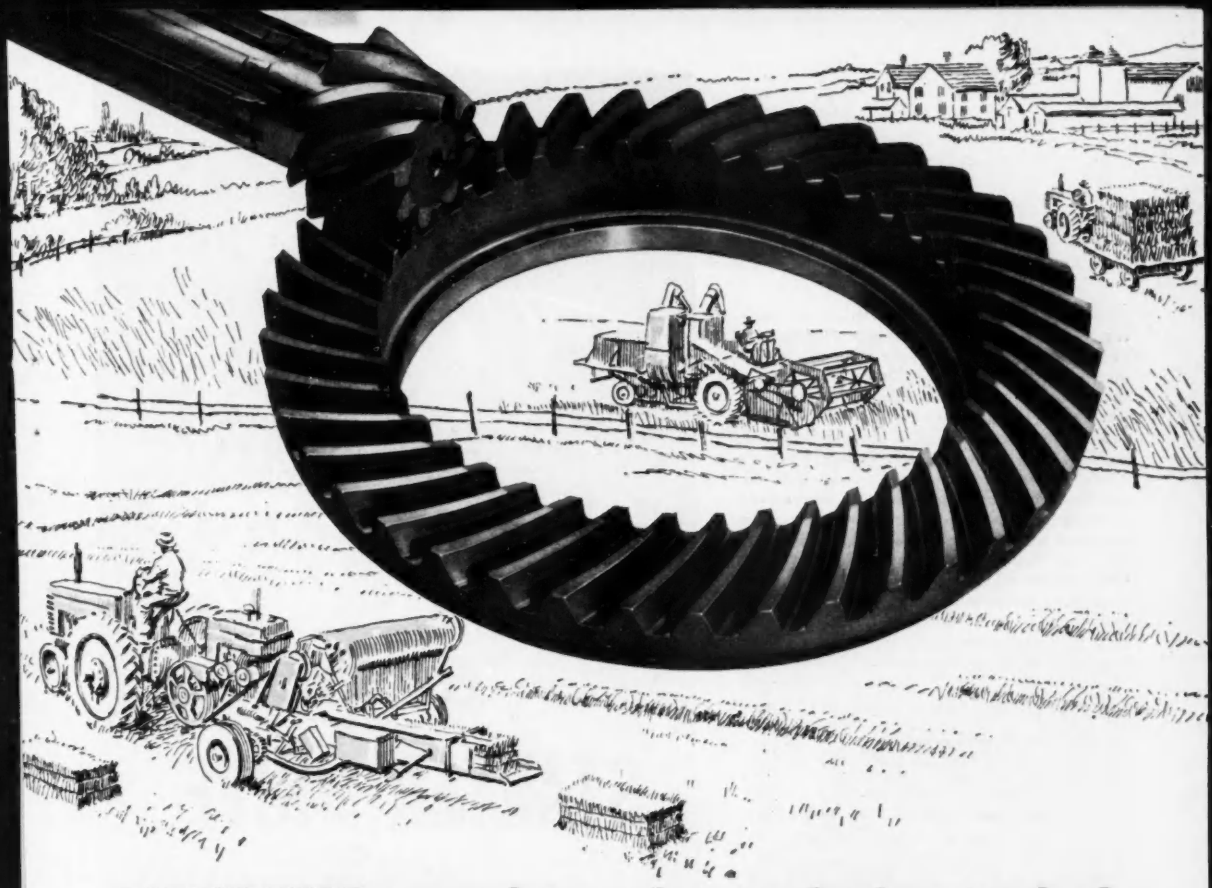

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We're particularly aware of this development because "Double Diamond" Gears have grown up with the flourishing farm machinery business. For years "Double Diamonds" have been transmitting power in all kinds of mechanized farm equipment. As the machines grew bigger—as demands of them became more critical—"Double Diamond" Gears have grown in demand. They must stand unusual abuse—long periods of idleness followed by around-the-clock service months on end—and must deliver dependable performance at points many miles from service centers. The fact that "Double Diamonds" have met these requirements, and for so many years, makes them a name to bear in mind when your needs call for gears of that character.

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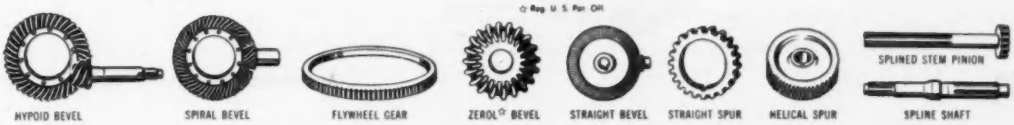

The *ease and convenience* of push button starting has made it a popular feature with the car-buying public. The *economy* of push button starting with the Bendix Drive has made it the choice of leading car manufacturers. This unique combination of quality and low cost is made possible by Bendix exclusive design features. For example, the Bendix* Starter Drive requires no actuating linkage and the solenoid may be placed in any convenient position. Result—starting motor can be mounted more easily and in more positions. Also the Bendix Drive has fewer parts and needs fewer adjustments. For true economy from installation to service, plus performance proven by over 85,000,000 installations, be sure to specify Bendix Starter Drive. Your inquiry will receive immediate attention.

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for MAGNETIC PARTICLE INSPECTION

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Above unit is one of many types taking any part up to 54" long for efficient inspection. Similar units to 96", or 144", or 192", as required. Both A. C. and D. C. magnetizing currents available, and many convenience, speed, and special purpose accessories. Illustrated unit has Magnaglo hood and black lights, to give highest speed inspection of most reliability on irregular shapes. COST: Portable units from $485, fixed "wet" type units from $2190.

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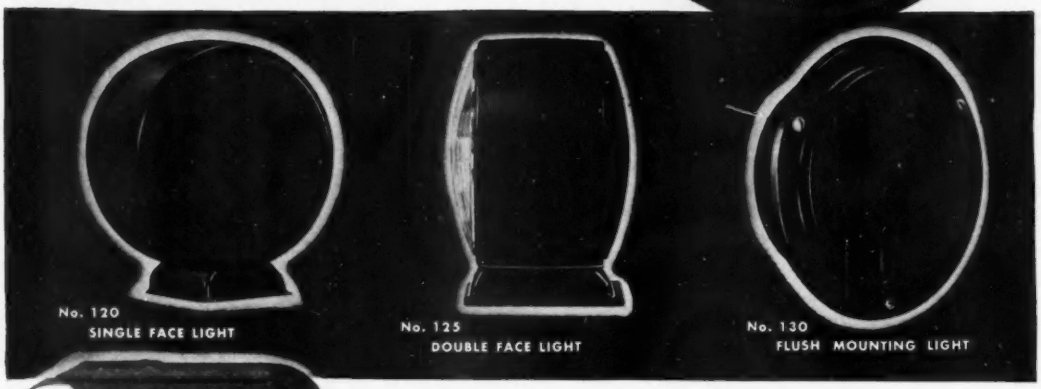
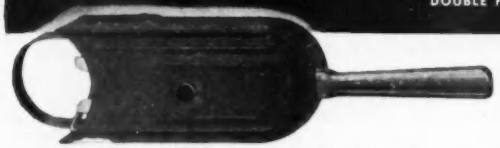


No. 120
SINGLE FACE LIGHT

No. 125
DOUBLE FACE LIGHT

No. 130
FLUSH MOUNTING LIGHT



DIETZ SELF-CANCELLING SWITCH No. 111-C
DIETZ NON-CANCELLING SWITCH No. 111-N

No. 120-A No. 125-A No. 130-A

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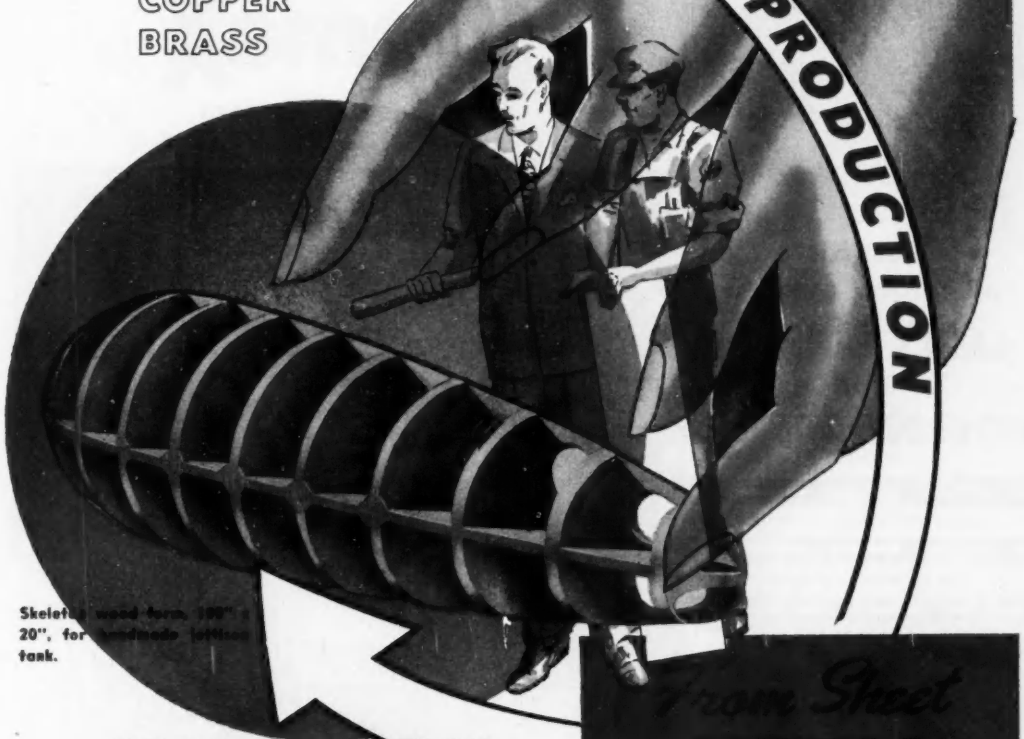

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Best for oil control even in

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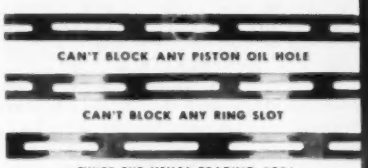

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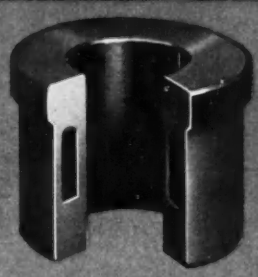
has cut a product's cost



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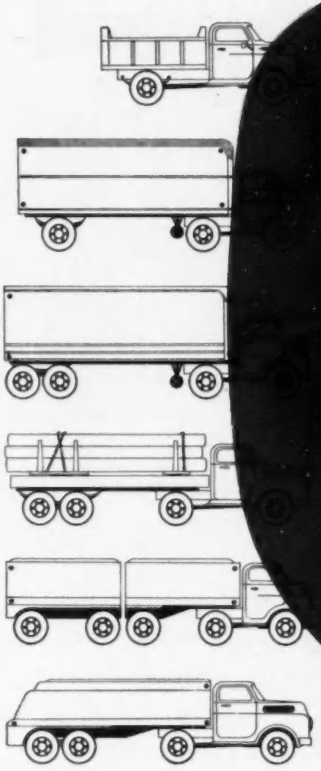

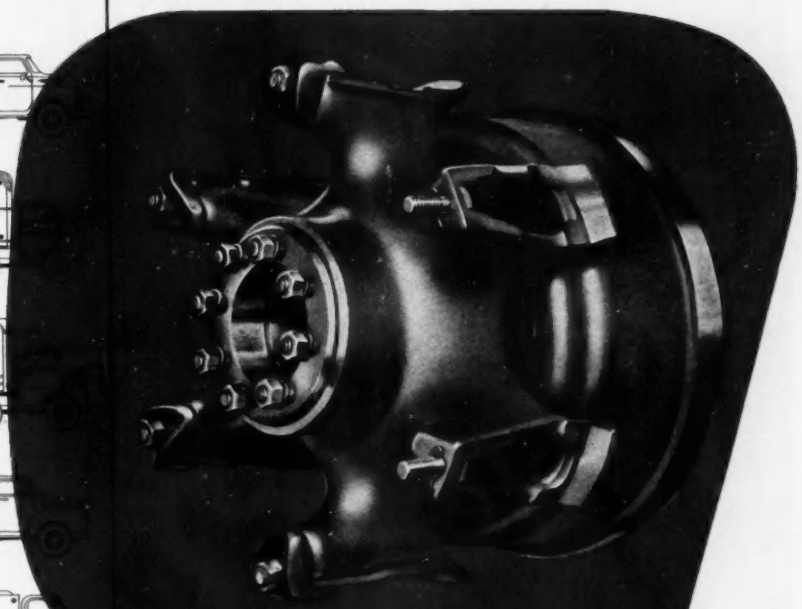

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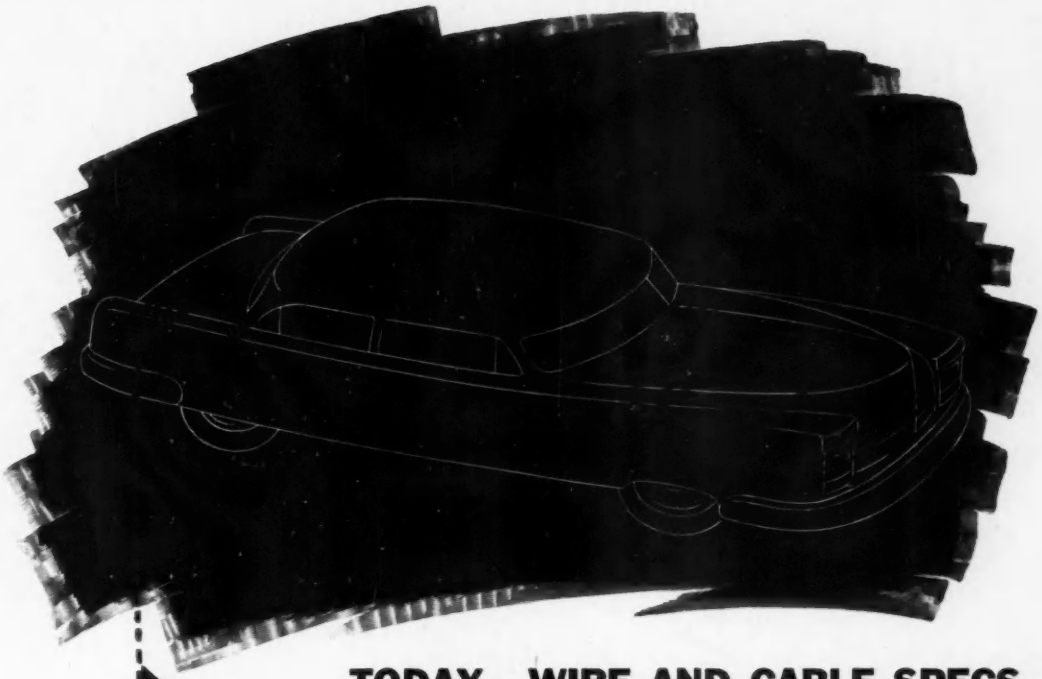
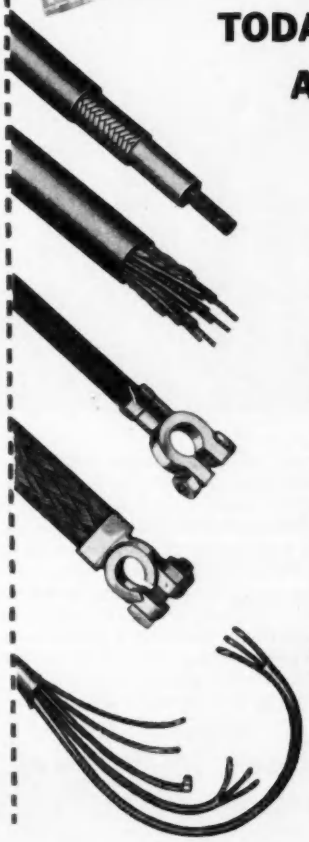


TODAY...WIRE AND CABLE SPECS ARE MORE INVOLVED... MORE IMPORTANT



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Crescent engineering and manufacturing facilities are *complete*. Wire is drawn to size from copper bars. Insulating compounds designed in our laboratories to meet the most exacting requirements are formulated from natural rubber, synthetic rubber, and the latest plastics. Constant laboratory testing maintains uncompromising quality control right from the start.

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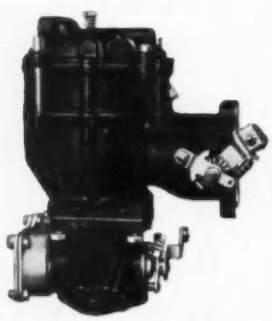
IT ALL DEPENDS ON PERFORMANCE and PERFORMANCE DEPENDS ON

Zenith CARBURETORS



No manufacturer could long exist in the competitive commercial vehicle field without drawing heavily on previous owners for new vehicle sales. It is perfectly obvious, no owner would buy the same make vehicle again and again unless it has delivered satisfactory performance. Therefore, it is just good business to see that every component contributes its share toward building owner loyalty. That's why manufacturers whose vehicles are Zenith* equipped measure carburetion costs in lasting terms rather than initial expense. In the field of heavy-duty carburetion, one name, Zenith, has stood for lasting satisfactory performance for over a quarter of a century. Zenith's rugged construction, strong idling, freedom from stalling and response to every demand make it the engineers' choice. For good will, it's good business to specify the best—Zenith for lasting performance.

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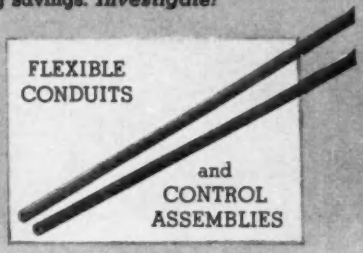

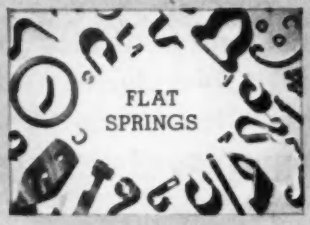

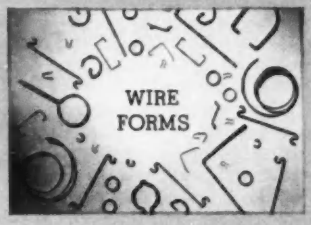

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- Grinding and polishing gaskets, grommets, etc.
- Padding, packing, sealing

Felt is not "just felt." There is a vast difference in its manufacture and efficiency. Because Western Felt for over fifty years has not, and will not, depart from its policy of maintaining the highest possible quality in material and manufacture, its products, wherever they may be employed, are your insurance against product complaints due to a Western Felt component part.

Here are just a few of its features that you can always depend on: range from wool softness to rock hardness—never loses shape—does not ravel or fray—resists oil, water, heat, age, resilient, flexible, compressible—may be cut to extremely close tolerances for small parts—unsurpassed in uniformity.

Western Felt engineers with decades of experience in the use of felt stand ready to counsel you.

100F

WESTERN FELT WORKS

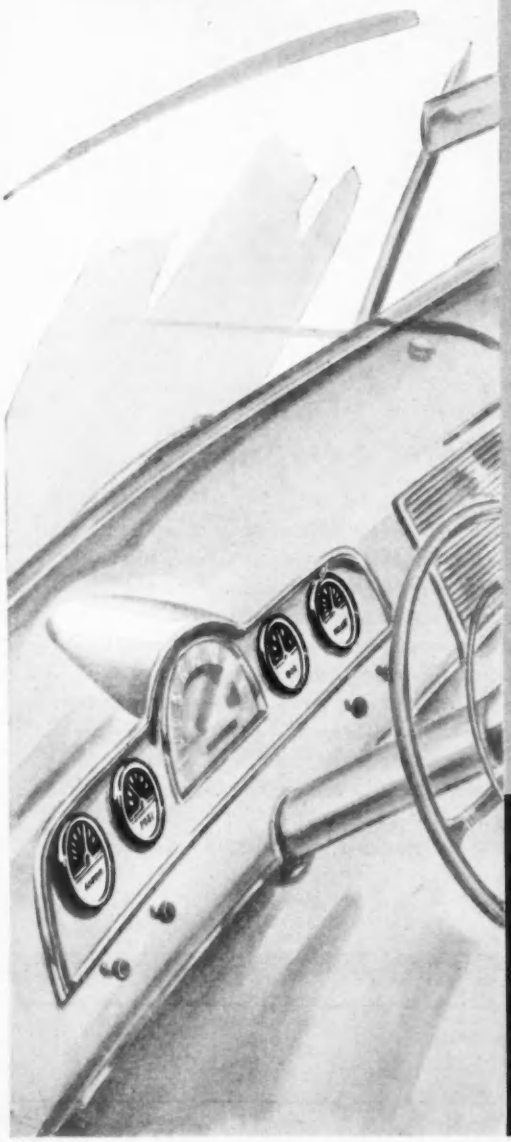
4035-4117 Ogden Ave., Chicago 23, Illinois

Branches in all Principal Cities

Largest Independent Manufacturers and Cutters of wool, hair and jute felts

KS DASHBOARD INSTRUMENTS

Manufactured Under Rigid Quality Control



Oil Pressure Telegage

Water Temperature Telegage

Fuel Level Telegage

Ammeter

Scientific Quality Control governs all manufacturing and assembly operations involved in the production of K S dashboard instruments and instrument clusters for passenger cars and trucks.

As a result these instruments are dimensionally accurate, easy to install; they function uniformly and assure the ultimate user years of uninterrupted service.

King-Seeley engineers are always at your service.

KING-SEELEY CORPORATION

ANN ARBOR, MICHIGAN

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BIG 4

CHEMICAL COMPOUNDS

*1 **METAL CUTTING LUBRICANTS**
Macco No. 472 Soluble Cutting Lubricant **Maccut No. 1** Cutting Paste • **Maccut No. 16** Straight Cutting Oil • **Maccut Clear Cut Concentrate**—Cutting Oil Base

*2 **RUST PREVENTIVES**
Macco No. 10 Solvent Cleaner and Rust Preventive • **Macco Blucoat** Water Soluble Rust Preventive • **Macco Anti-Rust No. 306** All-Purpose Material • **Macco Anti-Rust E.C.** Extreme Conditions Rust Preventive • **Macco Anti-Rust No. 9** Low Cost General Rust Protection

*3 **METAL DRAWING COMPOUNDS**
Mac Draw V. E. Compound, Easy Cleaning **Mac Draw No. 291** Pigmented Compound, Easy Cleaning • **Mac Draw No. 34-S** to Reduce Scoring and Breaking • **Mac Draw No. 40** Compound for Stainless Steel • **Mac Draw No. 96** Drawing Oil

*4 **METAL CLEANING COMPOUNDS**
Macco Enamel Cleaner for Porcelain Enameling • **Macco Platers' Cleaner No. 10** for Electro-Plating • **Macco Cleaner No. 261** Very Heavy Duty Cleaner • **Macco Special Stripper No. A-1** for Paints, Lacquer, Etc. **Macco Machine Cleaner "S"** for Pressure Washers • **Macco No. 373** Emulsion Type Cleaner • **Macco Machine Cleaner No. 71** for Cleaning and Phosphatizing

...assure fewer breakdowns in your Defense Schedules

There's only one way to get your steel products production line—whether for defense or civilian orders—running on a smooth and economical basis. That is to make a test run, using the Macco Compound that has been specially engineered for the operation at hand.

You don't experiment with Macco products. We have done your experimenting for you. We KNOW our compounds are right for your job before we ship them out. That's why, under the same conditions prevailing in your plant, America's leading manufacturers using Macco compounds unanimously report fewer breakdowns and great reductions in time loss, with up to 400% longer tool life.

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MACCO PRODUCTS COMPANY

CHEMICAL COMPOUNDS

FOR THE METAL WORKING TRADE--SINCE 1931

525 W. 76th STREET ★ CHICAGO 20, ILL.

to move more, faster... use more of your engine's hp.

The formula for moving any load at higher average speeds, *for less,* is simple:

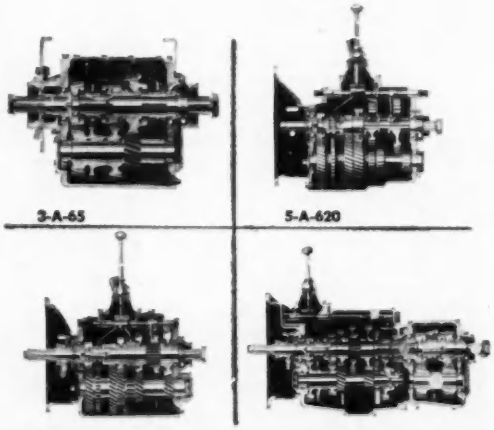
Put your horsepower to work *effectively.*

Every time you lug your engine, or even let it drop below the maximum efficiency range, you lose profits.

That's why the *right* transmission for your "road and load" is so important. That's why so many profit-wise operators specify Fuller Heavy-Duty Transmissions, Fuller Auxiliary Transmissions—and Fuller 10-Speed ROAD RANGER® Transmissions.

For the transmission is where *horsepower goes to work.* And Fuller has proved, time and again, to owner, to mechanic and to driver that Fuller Transmissions gear your rig to use more of your horsepower—to move more, faster, for less.

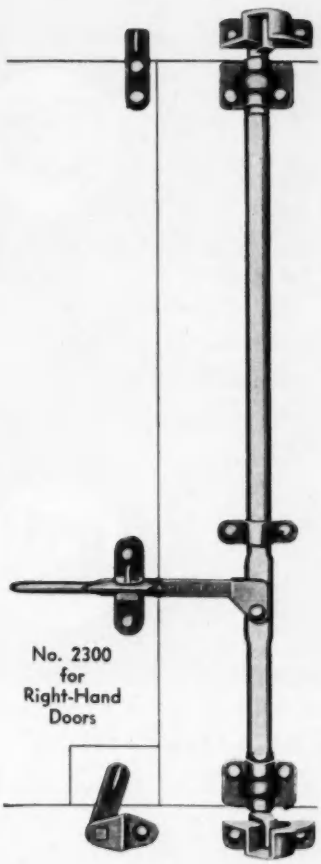
Illustrated are four of the wide selection of Fuller Heavy-Duty Transmissions. Ask for data on the type and hp. range in which you are interested.



3-A-65 5-A-620 5-C-720 10-S-1120

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.



Specify MINER

MINER *TUBULAR BAR TYPE*

DOOR FASTENER

for Truck and Trailer Bodies

This new Miner Truck Door Fastener No. 2300 is applicable to all sizes of rear and side doors, either single or double, and particularly desirable for refrigerator bodies.

The left-hand design of this fastener is designated as No. 2350.

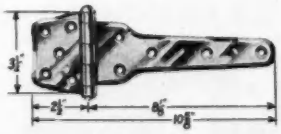
W. H. MINER, INC.

209 South La Salle St. Chicago 4, Ill.

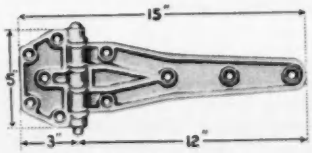
MINER DOOR HINGES

for TRUCK and TRAILER BODIES

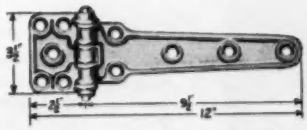
Miner Hinges combine attractiveness, strength and durability. They are exceptionally sturdy, in construction, yet so designed that all excess weight is eliminated. Made for flush-type doors.



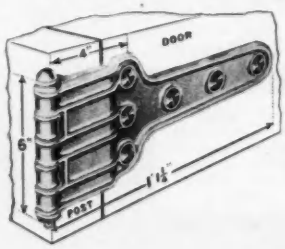
No. 1855. Especially desirable for small doors of ice cream bodies. Furnished in special bronze alloy, chrome plated, or in malleable iron, with special aluminum finish.



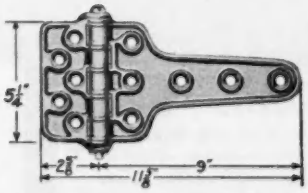
No. 1954. Recommended for large, heavy insulated doors. Made of malleable iron, with special aluminum finish.



No. 1857. Recommended for medium size doors. Made of drop-forged steel, with special aluminum finish.



No. 1953. Designed for use on rear doors. Permits doors to be swung to side of truck body. Made of malleable iron, with special aluminum finish.

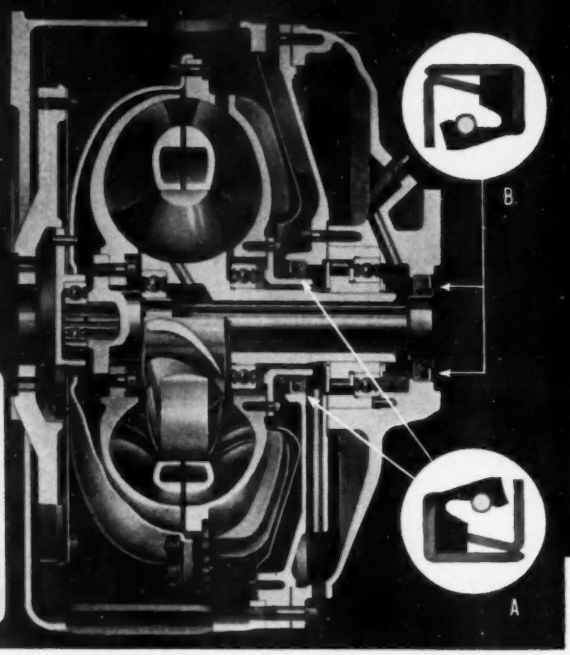


No. 1673. Recommended for large, heavy, insulated doors. Made of drop-forged steel, with special aluminum finish.

THE SEAL OF COOPERATIVE RESEARCH

C/R

Fuller TRANSMISSIONS



ON ROAD OR RAIL, FULLER TORQUE CONVERTERS PROVIDE POSITIVE ASSURANCE OF DEPENDABILITY

Today, you'll find Fuller torque converters in milk delivery trucks, fork-lift trucks, tow trucks, hoists, gasoline locomotives and in other applications where fluid transmission of power and positive assurance of dependability are absolute necessities. The 50-year-old Fuller Manufacturing Company has chosen C/R Sirvene "Perfect" oil seals to insure this vital dependability.

The illustrations show how these custom-designed C/R shaft-type seals provide positive bearing protection for the Fuller torque converter used in the two-speed forward and one-speed reverse transmission of International LB-140 milk delivery truck. A special C/R Sirvene seal at location "A" holds the oil within the circuit under pressures of from 10 to 12 pounds p.s.i. At location "B" a similar design of seal insures against leakage from the fluid coupling.

Solving tough or unusual sealing problems is C/R's specialty. That's why more automobiles, more agricultural equipment and industrial machines are relying on C/R seals than any other sealing device.

P.S. For immediate delivery, C/R "Perfect" oil seals are stocked in over 1800 sizes covering 15 different types.

CHICAGO RAWHIDE MANUFACTURING CO.
1310 Elston Avenue **OIL SEAL DIVISION** Chicago 22, Illinois

The cooperative research and engineering services which C/R has provided in producing special C/R oil seals (both synthetic rubber and leather) for leading manufacturers are available to you. We will be pleased to send you any information you wish. Brochure on request.

C/R Oil Seals

sirvis
Mechanical Leather Products
Boots, diaphragms, packings and other products give dependable service under difficult operating conditions.

SIRVENE
The Scientifically Compounded Elastomer
Custom-engineered and custom-built for critical service in aircraft, automotive and other mechanisms.

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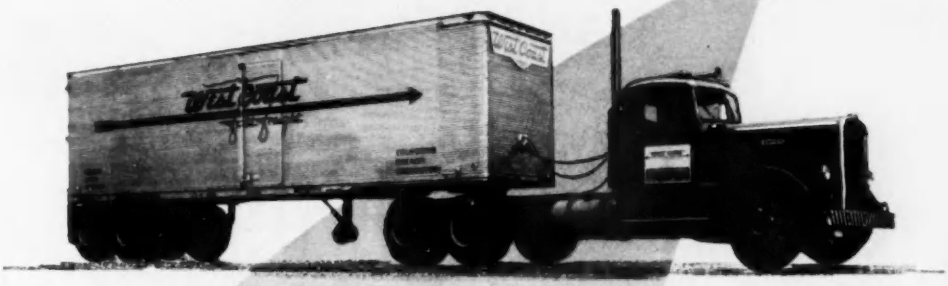


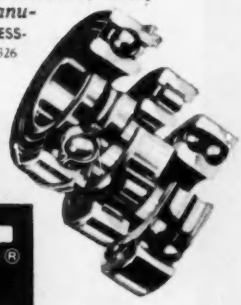
WEST COAST'S *RIGS*

Roll 20,000,000 Miles a Year With the Help of

SKF

It may be thirty below zero or a hundred and fifteen above—every day, almost a thousand West Coast Fast Freight trucks are covering California, Oregon, Washington, Idaho, Montana, travelling seven thousand miles of highway with general commodities. Their average load rolls 721 miles in a twenty-four-hour-a-day operation. The fact that West Coast rigs deliver the goods under tough conditions is a tribute to operating wisdom, and to good equipment well maintained. For this maintenance, West Coast depends on SKF Bearings. They've learned that, where endurance and dependability are essential, they can depend on SKF.

Designers of heavy-on and off-the-road automotive equipment know these SKF Bearings well. They depend on SKF Single Row Deep Groove Bearings for their ability to sustain combined radial and thrust loads at high speed, for their available combinations of shields and seals which exclude dirt and retain lubricant. They depend on SKF Cylindrical Roller Bearings for extremely high radial capacity and low friction which perform so well at high speed. And for propeller shaft boxes on heavy duty equipment, designers specify SKF Self-Aligning Ball Bearings. The teamwork of automotive equipment designers and SKF engineers always produces advanced, dependable equipment. **SKF INDUSTRIES, INC.,** PHILADELPHIA 32, PA.—*manufacturers of* **SKF** *and* HESS-BRIGHT *bearings.* 7326



SKF®
BALL AND ROLLER BEARINGS

IN EVERY INDUSTRY, SKF Puts The Right Bearing In The Right Place

"Made for Each Other!"

SERVICE PISTON RING SETS BY MUSKEGON

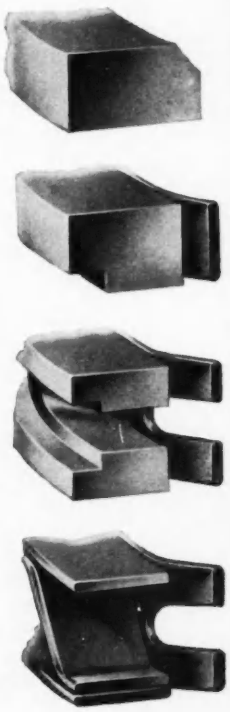
The set of service piston rings here illustrated was really produced by *two* engineering staffs.

For these rings are the end-product of close collaboration between a leading car manufacturer and Muskegon Piston Ring Company.

And naturally, when piston rings are carefully designed in this way for a *specific* engine—when the engine and the rings are literally "made for each other"—they are the *finest* rings obtainable.

Muskegon offers complete facilities in manpower and equipment to produce piston rings in this sensible and practical way.

These *Factory Approved* and *Factory Engineered* Service Piston Ring Sets are available only through car dealers and other authorized service outlets.



MUSKEGON

Piston Rings

MUSKEGON PISTON RING CO.
MUSKEGON, MICHIGAN
PLANTS AT MUSKEGON AND SPARTA

"THE ENGINE BUILDERS' SOURCE"

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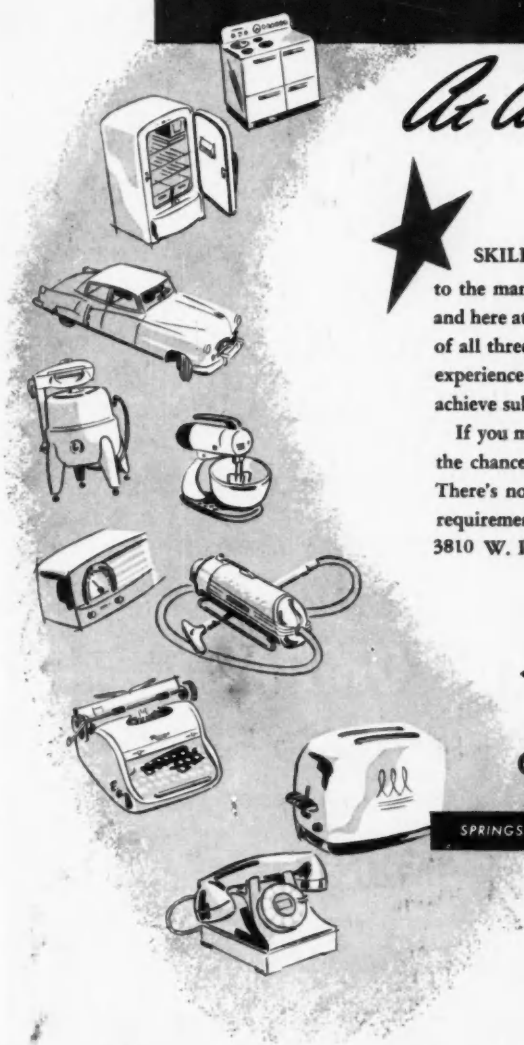
Skilled Springmakers . . .

with a broad background of experience and engineering know-how produce better springs at lower cost

At Accurate

SKILL, experience and know-how are essential to the manufacture of better springs at lower cost . . . and here at Accurate, we are able to offer liberal quantities of all three. For many customers Accurate's skill, experience and know-how have made it possible to achieve substantial reductions in spring costs.

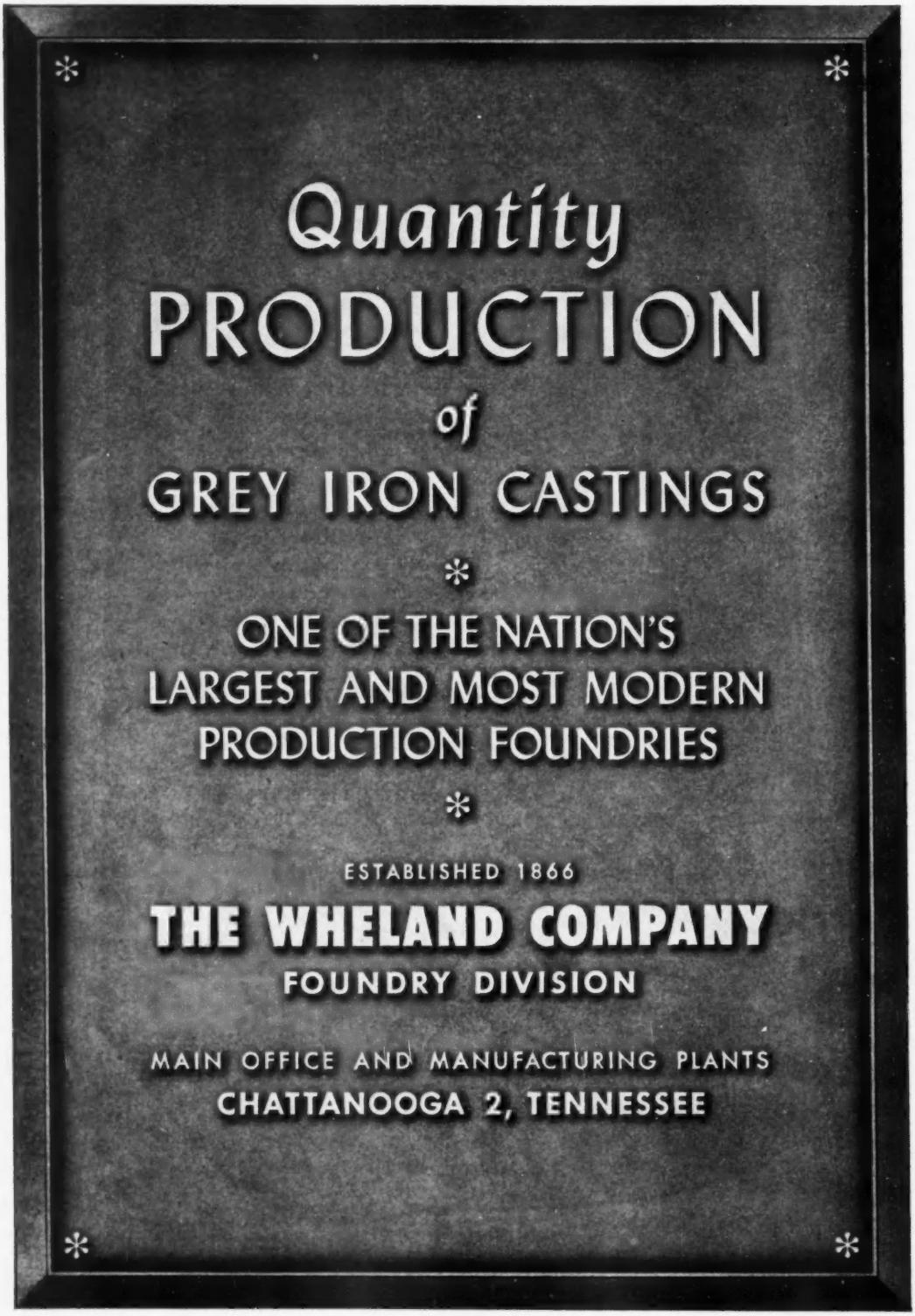
If you mass produce civilian or defense items, we'd like the chance to show you what we can do for you. There's no obligation. Just send an outlline of your requirements to ACCURATE SPRING MFG. CO., 3810 W. Lake St., Chicago 24, Illinois.



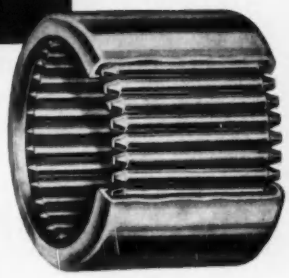
Accurate Springs

SPRINGS • WIREFORMS • STAMPINGS

Write for your copy of the Accurate Spring Handbook. It's full of useful data and helpful short cuts for making spring calculations.


Quantity
PRODUCTION
of
GREY IRON CASTINGS
ONE OF THE NATION'S
LARGEST AND MOST MODERN
PRODUCTION FOUNDRIES
ESTABLISHED 1866
THE WHELAND COMPANY
FOUNDRY DIVISION
MAIN OFFICE AND MANUFACTURING PLANTS
CHATTANOOGA 2, TENNESSEE

david tames goliath...



Torrington Needle Bearings are small—but mighty! A full complement of precision-ground rollers distributes loads evenly over an extra-large area . . . providing greater radial capacity in relation to O. D. than any other type of anti-friction bearing.

This high capacity, combined with compact size, has helped improve the efficiency of many products. So have other Needle Bearing advantages—light weight, easy lubrication and long service life. Ask our engineers to give you the whole story on Torrington Needle Bearings in terms of *your* product!

THE TORRINGTON COMPANY

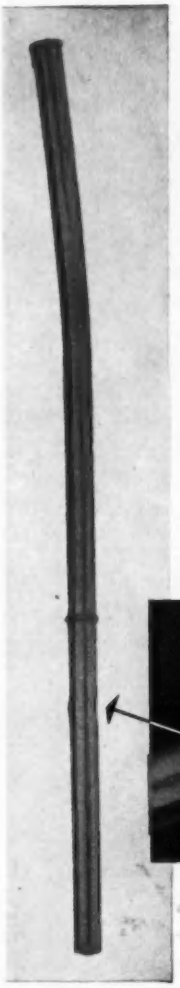
Torrington, Conn. South Bend 21, Ind.

District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON NEEDLE BEARINGS

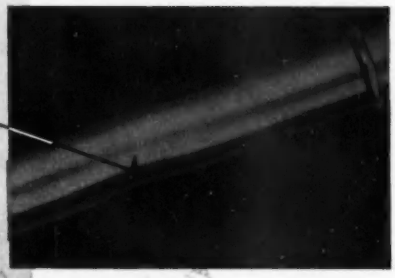
Needle • Spherical Roller • Tapered Roller • Straight Roller • Ball • Needle Rollers

Your greatest automotive



1. FABRICATION SAVINGS

Without any compromise of tubing function, Bundy engineers can often help cut fabrication costs. Above: oil distributor manifold part. Nozzle tubes were formerly soldered into a "T" fitting. The "T" was then soldered into sections of manifold tube. Bundy created saddle on nozzle-tube base. Saddle permits joining to pierced manifold tube with one soldering operation; gives sturdier, stronger joint. Result: Vast savings *and* improved part performance for a Bundy customer.



2. DESIGN SAVINGS

It is Bundy policy to do everything possible to meet a customer's specifications. But frequently Bundy men can find a way to redesign a part at considerable savings. Above: oil dip stick tube. Customer specified expanded tube diameter below upset to assure press fit in crankcase. After examining drawings, Bundy engineers suggested cheaply made offset bend below upset. Offset provides effect of press fit without expense. Too, Bundy suggested slight bend above upset to keep dip stick from rattling. Customer received a better functioning part produced at lower cost.

Bundyweld® Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

WHY BUNDYWELD IS BETTER TUBING

Bundyweld starts as a single strip of copper-coated steel. Then it's . . .

continuously rolled twice around laterally into a tube of uniform thickness, and

passed through a furnace. Copper coating fuses with steel. Presto . . .

Bundyweld, double-walled and brazed through 360° of wall contact.

← **NOTE** the exclusive patented Bundyweld beveled edges, which afford a smoother joint, absence of bead and less chance for any leakage.

Bundy Tubing Distributors and Representatives: Cambridge, 42, Mass.: Austin-Hastings Co., Inc., 226 Binney St. • **Chattanooga 2, Tenn.:** Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg. • **Chicago 32, Ill.:** Lapham-Hickey Co., 3333 W. 47th Place • **Elizabeth, New Jersey:** A. B. Murray Co., Inc., Post Office Box 476 • **Philadelphia 2, Penn.:** Rutan & Co., 1717 Sansom St. • **San Francisco 10, Calif.:** Pacific Metals Co., Ltd., 3100 19th St. • **Seattle 4, Wash.:** Eagle Metals Co., 4755 First Ave. South **Toronto 5, Ontario, Canada:** Alloy Metal Sales, Ltd., 881 Bay St. • **Bundyweld nickel and Monel tubing is sold by distributors of nickel and nickel alloys in principal cities.**

tubing buy on every count

Choose Bundyweld Tubing and you buy *proved*, safe performance; unmatched tubing features; engineering skills that make "impossible" parts possible and cut costs at every turn. *Look* at all you buy in Bundyweld Tubing:

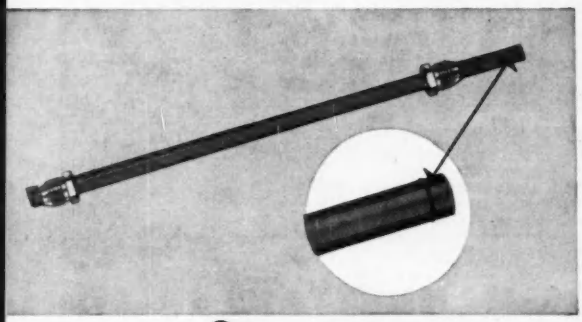
You buy priceless, safe tubing performance, proved in billions of miles traveled by millions of trucks, cars, buses and tractors with brake lines of Bundyweld Tubing. In the last 20 years, over two billion feet of Bundyweld have been used in those brake lines alone.

You buy unmatched tubing features. Bundyweld is the *only* tubing double-walled from a single strip with beveled edges. Its extra-strong steel walls are copper-brazed through 360° of wall contact. On the job, Bundyweld sails past shock, stress, strain. It has high endurance limit. It's leakproof. In production, Bundyweld goes through its paces without balking, bends easily, machines easily, handles easily.

You buy unsurpassed engineering skills. Many Bundy customers bring design problems to Bundy engineers; get simpler, cost-saving, tubing-part designs — *without* any compromise in function. If a customer wishes, Bundy will take over complete fabrication of a part — turn it out in large quantity, with an eye on accuracy and cost. Whether you need tubing in lightweight, easy-handling lengths for fabrication yourself, whether you need design or fabrication help, or whether you need fast delivery of finished parts, Bundy is equipped to answer your needs.

Whether they think of cost or performance — or both — the world's finest automotive engineers know there is no adequate substitute for Bundyweld Tubing — or Bundy skills.

Contact a Bundyweld Distributor (listed lower left), or write direct to *Bundy Tubing Company, Detroit 14, Michigan*



3. COST SAVINGS

Bundy leaves no stone unturned in search of ways to cut costs. For instance, Bundy fabricates simple truck fuel-line part above (of tinned Bundyweld). Customer wanted part shipped with sleeve-type compression fittings mounted on it. Bundy added small, non-interfering fin to each part end. Result: Fin keeps fittings from sliding off tubing part during shipping and subsequent handling, eliminates otherwise expensive packaging, eliminates cost of remounting fittings that would have slipped off.

4. PERFORMANCE SAVINGS

You save because of Bundyweld's safe, sure performance during the life of your trucks, cars, buses, tractors, or other automotive equipment. *Priceless* performance delivered at lowest cost consistent with Bundyweld quality. *Proved* performance delivered in fuel, oil, and brake-line systems of 95% of today's cars — fine testimony to Bundyweld reliability.

Friction material problem?

R/M BELONGS IN YOUR PICTURE!

"STOP-AND-GO" IS OUR BUSINESS!

Maybe you don't make light delivery trucks . . . but whatever your problems with brakes and clutches, you can count on RAYBESTOS-MANHATTAN for specially engineered friction materials that will do for *you* what R/M materials do for America's leading vehicle builders!

R/M's leadership in the automotive industry is traditional. More cars, trucks and buses use R/M brake linings, clutch facings, and automatic transmission friction parts than any other make. And R/M's leadership in these products extends to many other fields, from office machines to oil well equipment and heavy mine machinery.

Your R/M representative can work from samples, from designs on paper, or from figures on horsepower developed, combined with desired performance characteristics. Call him in! Behind him stand the full facilities of the world's largest maker of friction materials . . . with six great plants, their research departments, and their testing laboratories.

The recent opening of our new Wabash Division, Crawfordsville, Ind., provides expanded facilities for the manufacture of SINTERED METAL FRICTION MATERIALS

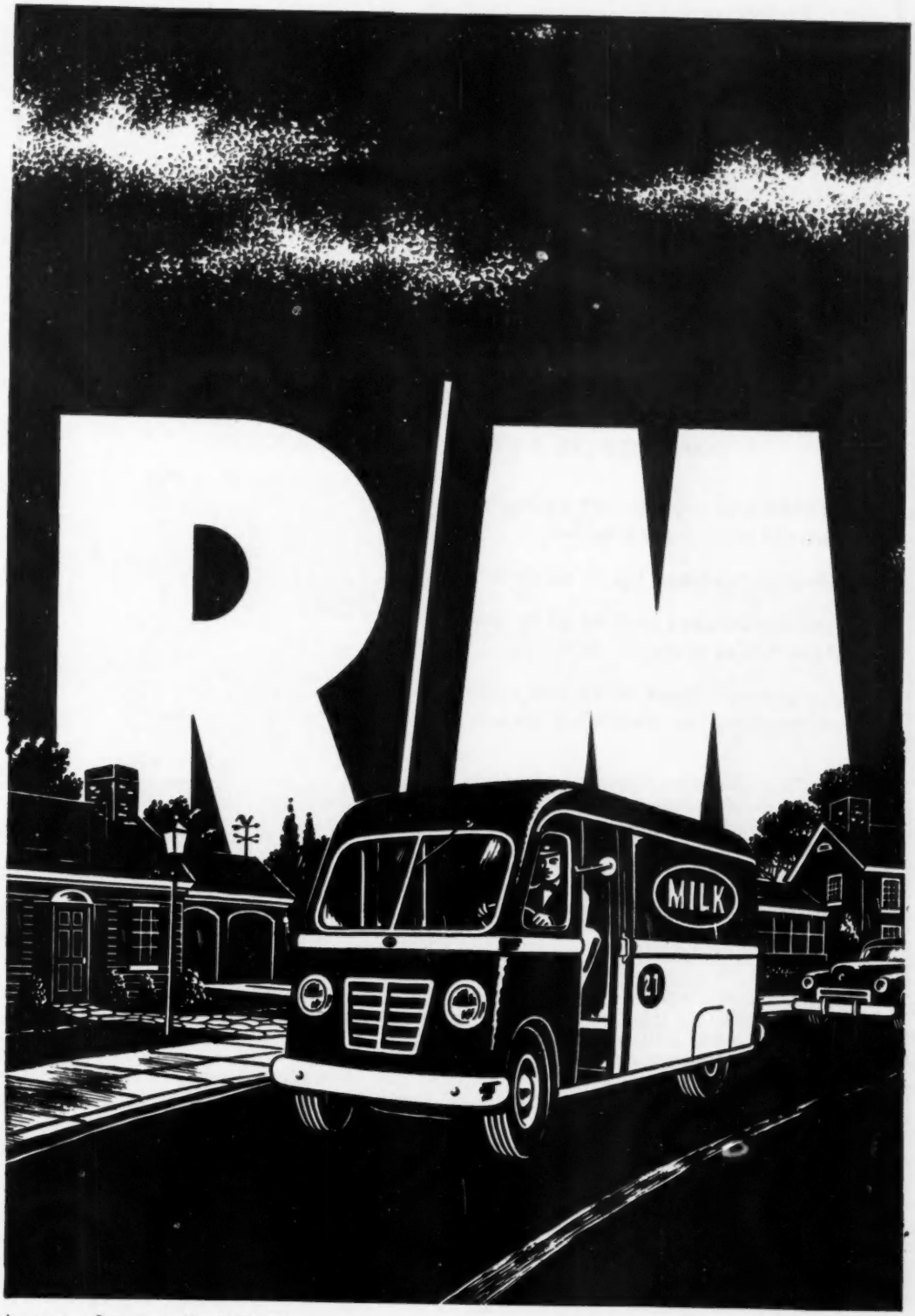
R/M
FIRST IN FRICTION

RAYBESTOS-MANHATTAN, INC.

EQUIPMENT SALES DIVISION 620 Fisher Bldg., Detroit 2, Mich.
Chicago 11 Cleveland 14 Los Angeles 11

Factories: Bridgeport, Conn. Manheim, Pa. Passaic, N.J. No. Charleston, S.C.
Crawfordsville, Ind. Canadian Raybestos Co. Ltd., Peterborough, Ont.

RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings Fan Belts • Radiator Hose • Mechanical Rubber Products • Rubber Covered Equipment • Packings Asbestos Textiles • Sintered Metal Products • Abrasive and Diamond Wheels • Bowling Balls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MILK
21

The Ultimate in

Differential Perfection . . .

CONTROLLED POWER — DUALOC DRIVE — TRADE MARK

Dualoc POWER-DIVIDING DIFFERENTIALS

ONLY Dualoc *P. D. Differentials

OFFER THESE OUTSTANDING FEATURES:

- ★ **Automatic transfer of power to wheel with best traction.**
- ★ **Power Division Up to 14 to 1.**
- ★ **Instantaneous control of torque that helps prevent skidding.**
- ★ **Cushioned load that prevents damaging or breaking axles.**

Dualoc *P-D Differentials are capable of distributing torque between the wheels, giving the wheel with the greatest traction the greater amount of power. Under adverse driving conditions Dualoc *P-D Differentials control the flow of torque to such a marked degree that slippage—due to uneven road surfaces, sand, gravel, icy spots, or when one wheel slips in mud or deep snow—is minimized to the point where stalls are practically eliminated.

The action of Dualoc *P-D Differential is fully automatic in operation. It is locked on a straight drive so there are no moving parts, thus minimizing wear and assuring long life.

(* P-D Power-Dividing)

Shown above is car equipped with Dualoc *P-D Differential negotiating deep snow bank that would have resulted in an instant stall with conventional type of differential. As may be noted snow is approximately 12 inches deep.

Mud hole fails to stop car equipped with Dualoc *P-D. Differential. As may be seen, car is pulling out of soft, slushy mud, approximately 10 inches deep. Same positive action is possible in reverse gear.

For Detailed Information Wire or Write

DUALOC DRIVE, Inc.

700 TWENTIETH STREET — ROCKFORD, ILLINOIS

Makers of Power-Dividing Differentials for Cars, Trucks and Tractors

"These models weren't born yesterday"

Although today's new model cars may be fresh from the assembly line, each has been a long time in the making! Preceding every one are months, even years of design and testing . . . of continuous search for improvements in car performance and dependability.

Especially is this true of the castings which are the very heart of each new model. Castings today *are* better . . . in strength, in resistance to wear and in machinability.

Automotive engineers have long looked to Campbell, Wyant and Cannon for the new and better in castings . . . for improvements which have paced other important automotive developments. Advanced metallurgical engineering, precision control and mechanized production, pioneered and perfected by this largest independent foundry, make possible such improvements in castings . . . make them available *today* for tomorrow's new models.

CAMPBELL, WYANT AND CANNON FOUNDRY COMPANY, MUSKEGON, MICHIGAN

Foundries in Muskegon, South Haven and Lansing, Michigan

. . . serving the automotive, farm equipment, railroad and marine industries and the Armed Forces.

CAST CYLINDER HEADS AND BLOCKS

CAST PISTONS

CAST CAMSHAFTS

CAST CRANKSHAFTS

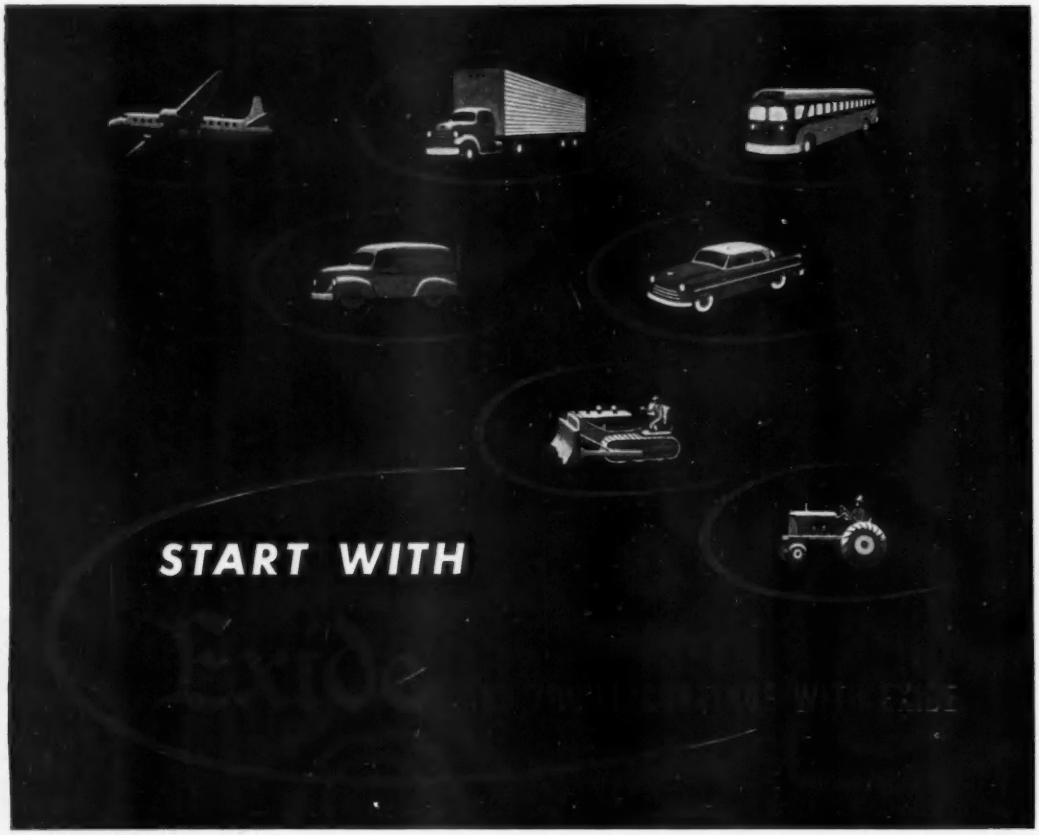
CAST GEARS

CENTRIFUGALLY CAST CYLINDER LINERS

CENTRIFUSE BRAKE DRUMS

CWC

Since 1908



ALL TYPES for ALL NEEDS . . . and FACTORY FRESH

Exide Batteries are made in types, sizes and capacities for all automotive applications—gas and diesel engines, automobiles, trucks, tractors, off-the-highway equipment, aircraft, motorboats.

FACTORY-FRESH, because Exide manufacturing and assembly plants, located throughout the country, assure you prompt deliveries.

EACH EXIDE BATTERY is a product of progressive research-engineering that has continued without interruption since the first automobile starting battery, an Exide, was placed in service. The result: batteries that are built to withstand the most rugged operating conditions.

For dependable performance, long life, and low cost per mile of operation, specify Exide Batteries.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 2
Exide Batteries of Canada, Limited, Toronto
"Exide" Reg. Trade-mark U.S. Pat. Off.

STARTING POWER

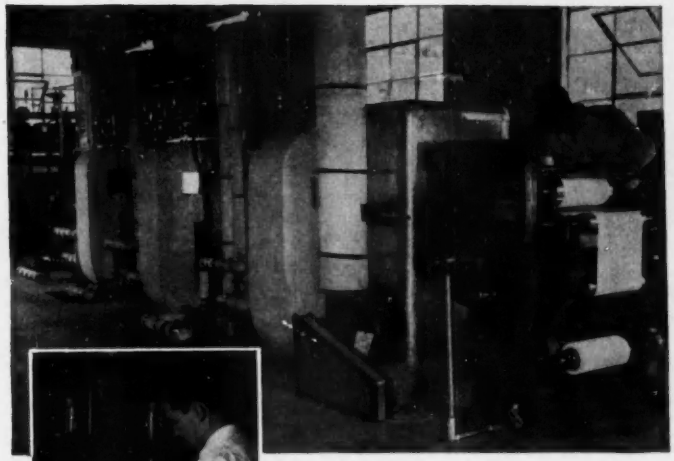
for light, medium or heavy-duty service

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952

Men who design, engineer and buy America's products rely on..and use..National Laminated Plastics because..

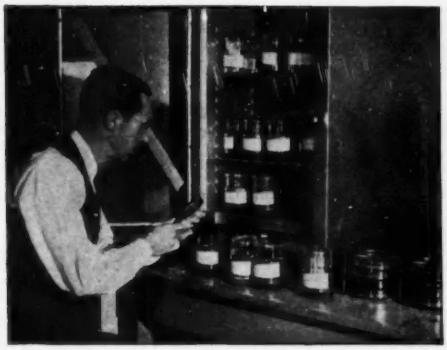
"At National, engineering research is of prime importance. We believe only through it and by large investment in it are we able to: *first*, provide industry with dependable laminated plastics for the efficient production of today's products which were developed yesterday; *second*, give practical assistance to the design engineer who is creating today, new, better products for tomorrow."

J. Warren Marshall, **President**
National Vulcanized Fibre Co.



At the Proving Grounds

Here is the Phenolite Pilot Plant—coating machine and press in miniature—where under exact commercial production conditions, testing and experimental work are conducted on thermo-setting products requiring special resins or base materials. This is representative of the research engineering facilities National provides in which over a million dollars are invested.



Stiegler's Fungus House

Frederick L. Stiegler directed the pioneering research that came up with a fungus-resistant vulcanized fibre, satisfactory for extended exposure to moist, warm air. This new grade of National Vulcanized Fibre has important use in refrigerators and products that must perform in fungus-generating climates.

National Laminated Plastics
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NATIONAL VULCANIZED FIBRE

A tough horn-like material with high dielectric and mechanical strength. Excellent machinability and forming qualities, great resistance to wear and abrasion, long life, lightweight. Sheets, Rods, Tubes, Special Shapes.

PHENOLITE the Laminated PLASTIC

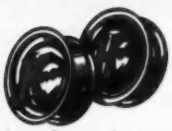
Phenolite possesses an unusual combination of properties—a good electrical insulator, great mechanical strength, high resistance to moisture; ready machinability, lightweight. Sheets, Rods, Tubes, Special Shapes.

Just published! National Laminated Plastics Handbook.
Write for copy. Your company letterhead please.

National Vulcanized Fibre Co.

Wilmington *Offices in* Delaware *Principal Cities*

Since 1873



. . . IN DEFENSE PRODUCTION!

Aircraft engine parts, shells and shell casings, rockets and many other items for defense use.

Wheels, brakes, hubs and drums for cargo trailers, troop carriers, tanks, gun carriages, etc.

Electric brakes, brake power equipment, power chambers and valves for all military vehicles.

. . . IN PEACE TIME PRODUCTION!

Wheels, brakes, hubs and drums for passenger cars, buses, trucks and tractor-trailer combinations . . .

Electric brakes, brake power equipment, power chambers and valves for civilian vehicles . . .

Complete foundry, machining, pressed metal stamping, testing, inspection and engineering development facilities.

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EXECUTIVE OFFICES, MILITARY AVENUE • DETROIT 32, MICHIGAN

7 GREAT PLANTS:
McKeesport, Pa. • 2 Plants in Detroit
Jackson, Mich. • Davenport, Iowa
Los Angeles, Calif.
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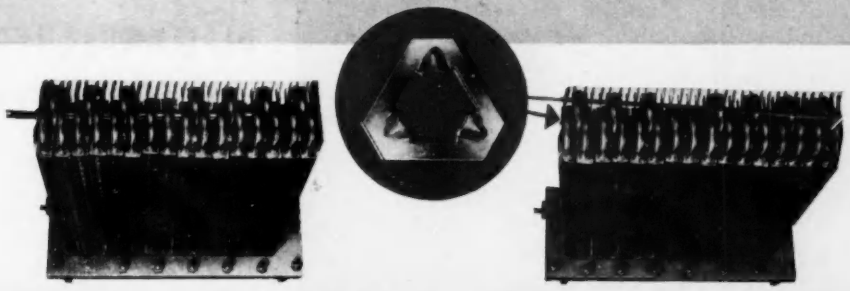
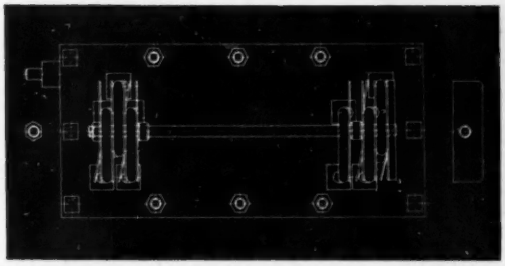
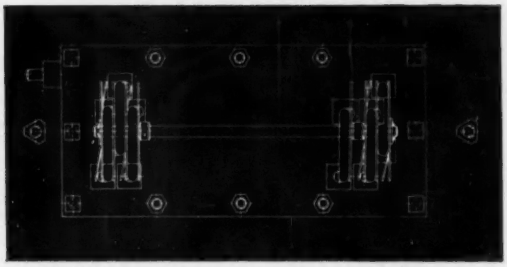
2 WALDES TRUARC TRIANGULAR RETAINERS REPLACE NUTS... CUT MATERIAL AND ASSEMBLY COSTS 52%





OLD WAY—Tie rod for thermal tubes required threading at both ends, a jam nut at top, a drilled and tapped cast iron tube-rest at bottom. Assembly was slow, costly.



NEW WAY—Truarc Retainers (triangular type) simply push into position at both ends of rod...hold securely without grooves, threads, or nuts. Assembly is inexpensive, speedy!

When the Grinnell Co., Providence, R. I. redesigned their Thermolier Unit Heater to include Waldes Truarc Retaining Rings, they were able to cut down on scarce raw material... eliminate the many machine operations entailed in nut fastening—for a savings of 26½¢ per unit! Truarc Triangular Retainers are self-locking...have unusually high thrust capacity... can be applied at high speed by unskilled labor.

Re-design with precision engineered Truarc Rings and you too will cut costs. Wherever you use machined shoulders, bolts, snap rings, cotter pins, there's a Waldes Truarc Retaining Ring designed to hold parts together better, with a never-failing grip. Quick, easy to assemble and disassemble.

Find out what Truarc Rings can do for you. Send your blueprints to Waldes Truarc engineers for individual attention, without obligation.

WALDES TRUARC RINGS MADE THESE SAVINGS POSSIBLE...

OLD WAY Parts:	Cost Per Unit	NEW WAY Parts:	Cost Per Unit
tube rest, threaded rod, jam nut	$.306	plain rod, 2 Truarc Rings	$.060
Assembly	.202	Assembly	.183
	$.508		$.243

TOTAL SAVINGS PER UNIT WITH TRUARC RINGS $.265

SEE THE WALDES TRUARC EXHIBIT. I R E SHOW, GRAND CENTRAL PALACE, N.Y. C., MARCH 3 through 6th. Booths 358 & 359•ASTE SHOW, CHICAGO AMPHITHEATRE, MARCH 17 through 21st. Booth 751

For precision internal grooving and undercutting...Waldes Grooving Tool.

SEND FOR NEW BULLETINS

WALDES TRUARC

REG. U. S. PAT. OFF.

RETAINING RINGS

WALDES KOHINOOR, INC., LONG ISLAND CITY 1, NEW YORK

WALDES TRUARC RETAINING RINGS AND PLIERS ARE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 2,382,947; 2,382,948; 2,416,052; 2,420,021; 2,420,341; 2,420,700; 2,441,848; 2,455,165; 2,462,300; 2,462,303; 2,467,802; 2,467,803; 2,481,306; 2,500,081 AND OTHER PATENTS PENDING.

Waldes Kohinoor, Inc., 47-16 Austel Place, L. I. C. 1, N. Y.
Please send engineering specifications and data on Waldes Truarc Retaining Ring types checked below. AY-034

- ☐ Bulletin #5 Self-locking ring types
- ☐ Bulletin #6 Ring types for taking up end-play
- ☐ Bulletin #7 Ring types for radial assembly
- ☐ Bulletin #8 Basic type rings
- ☐ Send me information about the Waldes Grooving Tool.

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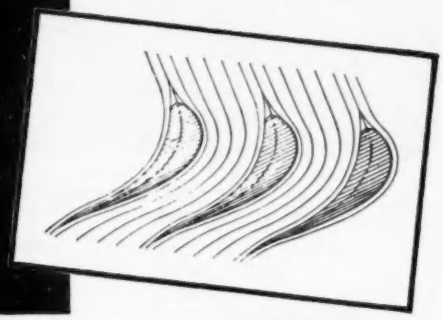
DISTINGUISHED FOR SIMPLICITY AND GREATER EFFICIENCY



SCHNEIDER

HYDRAULIC TORQUE CONVERTER

Pioneers of torque converters in America, Schneider today is producing dependable hydraulic torque converters that are characterized by their simplicity and economy. These units are used in busses, trucks, tractors, and industrial application.

Companies licensed under the Schneider System include:

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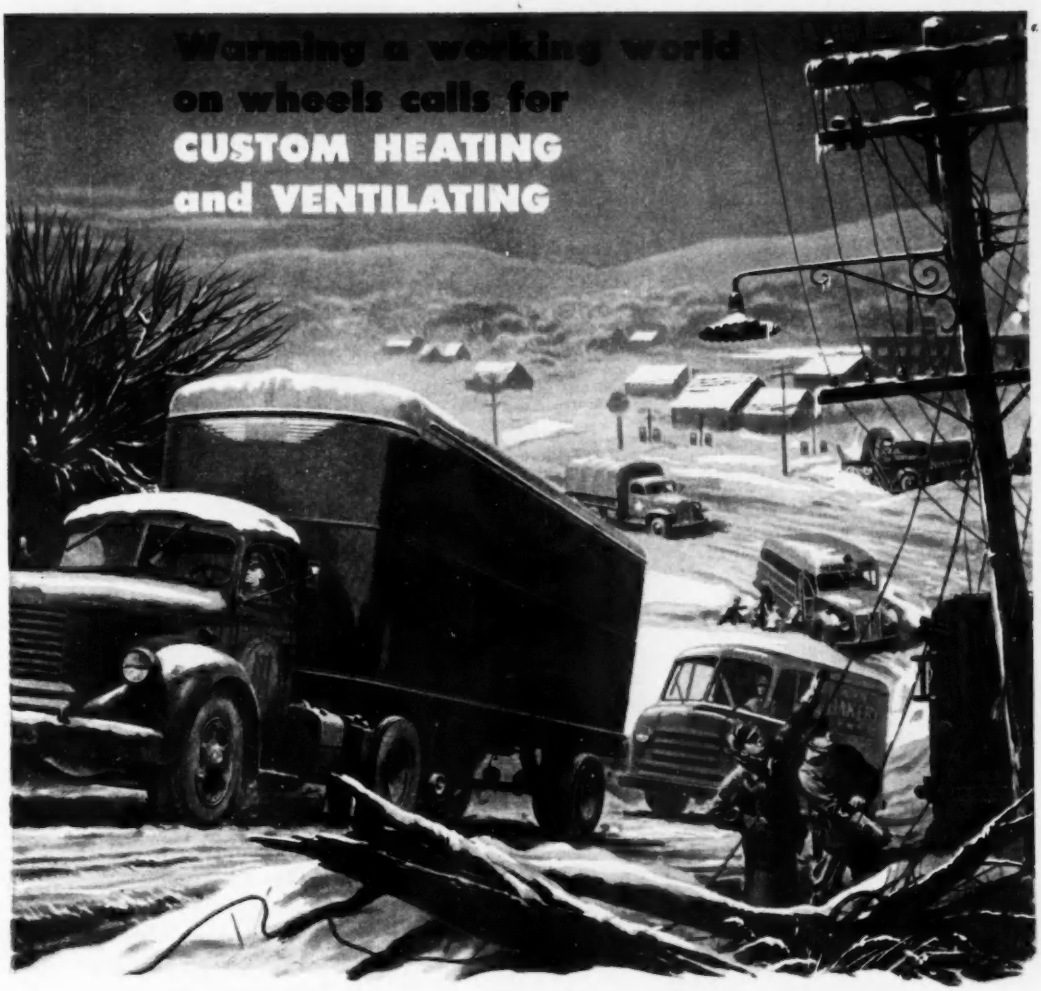
The White Motor Co., Cleveland, O.
Clark Equipment Co., Buchanan, Mich.
Torcon Corp., Chagrin Falls, O.
Western Gear Works, Seattle, Wash.
R. G. Le Tourneau, Inc., Peoria, Ill.

SCHNEIDER MANUFACTURING CORP.

Pioneers of Torque Converters in America

315 North Franklin Street,—Muncie, Indiana



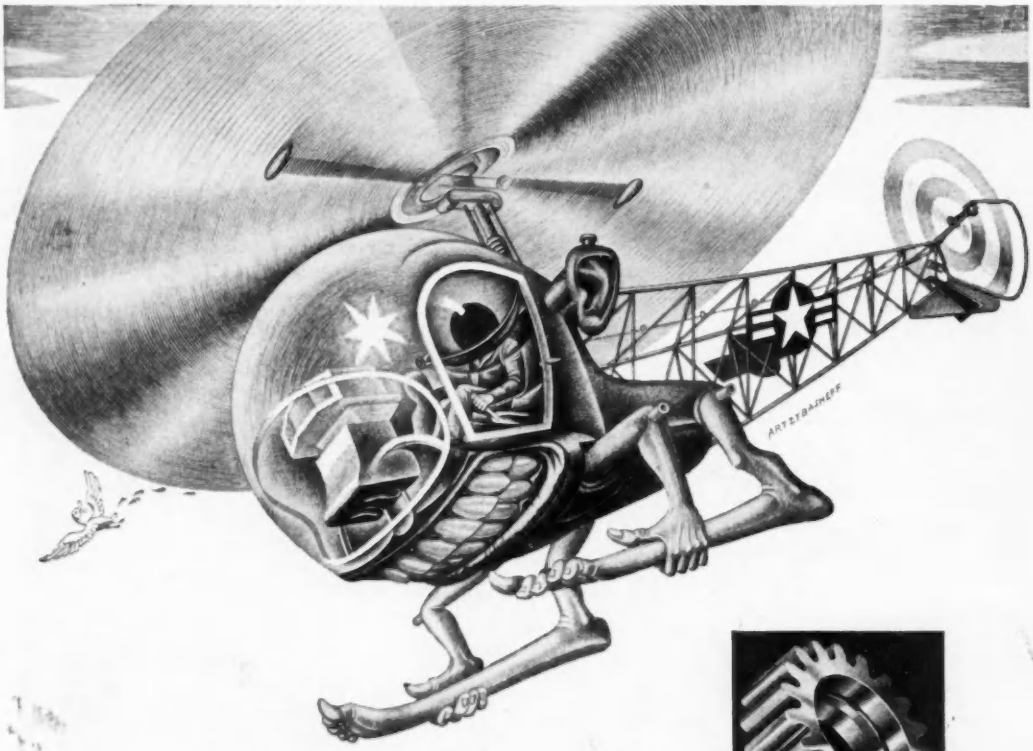
Winter's icy fingers chill occupants of buses and trucks and endanger costly loads. Breaking their frigid grip calls for *custom* heating and ventilating—tailored to fit the particular vehicle, designed to warm the particular interior, engineered to utilize the particular engine heat.

For example: Door to door deliveries of fresh bakery bread suffered damage when low temperatures made textures tough. Evans *heating engineers* developed a heater particularly designed to produce a flood of warmth regardless of the opening and closing of truck doors for delivery. It protects delicate bread from damage. Evans' specialty is engineering fully efficient heat output from a perfectly balanced combination of Evanair fan, core, and sturdy heater motor. This engineering know-how produces exceptional performance.

Evans has successfully engineered tough jobs in school buses, snowplows, trailers, tanks, trucks, cargo planes, and homes. To solve problems in vehicle or shelter heating, consult

Heating & Ventilating Division, Dept. P-13, Evans Products Company, General Offices: Plymouth, Michigan. Plants: Plymouth, Michigan; Coos Bay, Oregon; Vancouver, B. C.

... EVANS ENGINEERS CUSTOM HEATING AND VENTILATING FOR A WORKING WORLD ON WHEELS ...



Ever see a helicopter grit its teeth?

To temper a steel gear to almost incredible hardness . . . to machine it to tolerances of 1/10,000 of an inch . . . Bell Aircraft Corporation called on Lycoming's skill, experience and extensive facilities.

Such super-precision work typifies simply *one* of Lycoming's services to America's leading industries and to its military forces. Long famous for aircraft engines, Lycoming also meets the most exacting and diverse requirements for packaged power, for product development, for high-volume production.

Whatever your problem—however complex your specifications—look to Lycoming!

When a helicopter's giant blade spins, tiny two-inch gears must carry the load. For teeth with a perfect bite, **Bell Aircraft chose Lycoming's precision production.**

AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES, PRECISION-AND-VOLUME-MACHINE PARTS, STEEL-PLATE FABRICATION, GRAY-IRON CASTINGS

LOOK TO LYCOMING FOR RESEARCH FOR PRECISION PRODUCTION

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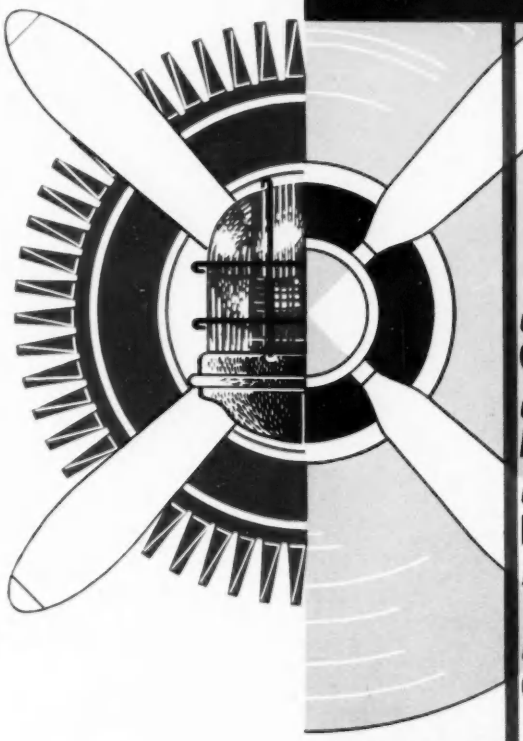
AUTOMOTIVE INDUSTRIES

34TH ANNUAL STATISTICAL ISSUE

AVIATION SECTION



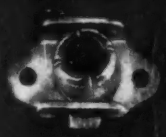
U. S. AND FOREIGN
CIVIL AIRCRAFT

U. S. AND FOREIGN
MILITARY AIRCRAFT

UNITED STATES
ENGINES FOR AIRCRAFT
PISTON TYPE

U. S. AND BRITISH
GAS TURBINES

- **PRODUCTION DATA**
- **REGISTRATIONS OF CIVIL AIRCRAFT**
- **AIRPORTS AND LANDING FIELDS**
- **EXPORTS**
- **SPECIFICATIONS**
- **LOOKING AHEAD IN THE AVIATION INDUSTRY**



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NYLON OR FIBER

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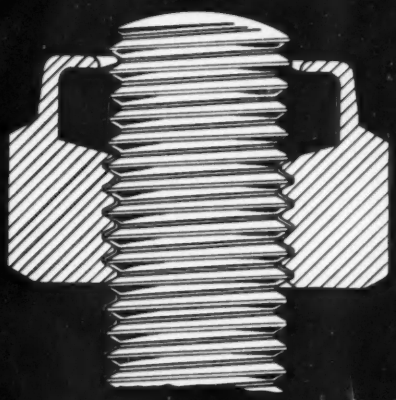


APPROVED SELF-LOCKING FASTENERS

ESNA

AVIATION DATA

PRODUCTION • REGISTRATIONS • EXPORTS

Aircraft and Aircraft Engine Production, by Years

Year	Aircraft: Civil	Military	Total	Value	Aircraft Engines: Number	Value	Value of All Products●
1927	1,286	609	1,995	$14,504,999	1,400	$9,493,000	$30,397,000
1928	3,499	847	4,346	.....	.....	.....	64,662,000
1929	5,414	779	6,193	51,508,120	6,276	24,966,000	91,051,000
1930	2,601	836	3,437	.....	.....	.....	60,846,000
1931	1,947	853	2,800	21,790,000	3,794	13,779,000	48,540,000
1932	896	500	1,396	.....	.....	.....	34,861,000
1933	993	331	1,324	15,859,995	1,822	8,651,247	33,357,000
1934	1,222	393	1,615	.....	.....	.....	42,892,000
1935	1,374	336	1,710	17,454,331	2,866	12,610,285	42,506,000
1936	2,152	858	3,010	.....	.....	.....	78,149,000
1937	2,915	858	3,773	38,664,153	6,214	28,576,971	114,093,000
1938	2,698	925	3,623	.....	.....	.....	198,293,000
1939	4,935	921	5,856	75,872,587	11,172	74,282,000*	247,905,000
1940	6,785	6,019	12,794	146,000,000	22,667	101,000,000*	370,000,000
1941	6,844	19,433	26,277	819,000,000	58,181	426,000,000*	1,864,000,000
1942	n.p.	47,836	47,836	2,762,000,000	133,089	1,314,000,000*	5,817,000,000
1943	n.p.	85,898	85,898	6,696,000,000	227,116	2,226,000,000*	12,514,000,000
1944	n.p.	96,318	96,318	9,233,000,000	256,911	3,075,000,000*	16,047,000,000
1945	2,047	47,714	49,761	5,141,000,000	109,650	1,650,000,000*	8,279,000,000
1946	35,001	1,669	36,670	362,772,192	43,407	126,860,393	629,505,722
1947	15,870	2,100	17,970	444,421,000	21,178	237,078,000	1,135,418,000‡
1948	7,302	2,489	9,791	114,207,590	9,032‡	30,017,250‡	221,638,143‡
1949	3,545	.....	3,545	121,446,234‡	3,982‡	14,236,809‡	224,063,565‡
1950	3,520	.....	3,520	100,097,000§	4,314‡	20,058,000‡	217,162,000
1951	2,477	.....	2,477	88,848,000§	4,581‡	37,807,000▲	274,921,000

N.P.—No production other than military. *—War Production Board and Civilian Production Administration. ‡—Civil production only.
†—Sources: Odd years 1919 through 1939, as reported by Census of Manufacturers. Other year, various sources. Total units produced 1940-1949 as reported by Civil Aeronautics Administration and Bureau of the Census. Value of airframes 1940-1945, Department of Commerce.
‡—Includes aircraft and engines and parts for both. ●—Value of aircraft, engines, parts, parachutes, etc. from C.A.A. and Census Bureau.
▲—Includes value of engine parts also.
NOTE:—The values of engines, propellers and power plant accessories installed in the aircraft are not included in the value of the aircraft reported for 1931 to 1951.

Shipments of Complete Civil Aircraft and Other Products of Their Plants, 1951-1950*

In Units and Their Value

Month	Complete Aircraft: Number 1951	Number 1950	Value 1951	Value 1950	Value of Aircraft Parts 1951	Value of Aircraft Parts 1950	Value of Other Products 1951	Value of Other Products 1950	Total Value of All Products 1951	Total Value of All Products 1950
January	255	167	$4,859,000	$12,103,000	$2,462,000	$2,499,000	$2,930,000	$1,754,000	$10,251,000	$16,356,000
February	239	225	3,667,000	7,911,000	2,689,000	2,812,000	2,722,000	1,744,000	9,078,000	12,467,000
March	273	226	3,350,000	5,731,000	3,226,000	3,037,000	3,270,000	1,984,000	9,846,000	10,752,000
April	247	329	13,352,000	6,390,000	3,068,000	2,256,000	3,361,000	1,759,000	19,781,000	10,405,000
May	248	377	10,738,000	7,809,300	2,501,000	2,325,000	3,555,000	2,383,000	16,794,000	12,517,000
June	216	369	8,090,000	8,381,000	3,720,000	2,510,000	3,708,000	1,964,000	15,518,000	12,855,000
July	207	321	6,419,000	6,583,000	3,701,000	1,777,000	3,638,000	1,709,000	13,758,000	10,069,000
August	170	354	5,485,000	7,909,000	6,219,000	2,236,000	3,842,000	2,183,000	15,546,000	12,324,000
September	184	301	5,525,000	8,091,000	4,775,000	2,273,000	3,531,000	2,131,000	13,831,000	12,495,000
October	124	204	3,831,000	5,118,000	5,562,000	2,287,000	5,242,000	1,986,000	14,635,000	9,391,000
November	163	242	10,477,000	15,072,000	5,350,000	2,622,000	4,134,000	1,911,000	19,961,000	19,605,000
December	152	305	13,055,000	7,999,000	5,900,000	2,552,000	4,237,000	3,010,000	23,192,000	13,561,000
Total	2,477	3,520	$88,848,000	$100,097,000	$49,173,000	$29,186,000	$44,170,000	$24,518,000	$182,191,000	$153,801,000

* Industry Division, Bureau of the Census and Civil Aeronautics Administration.

Shipments of Civil Aircraft Engines and Other Products of Their Plants, 1951-1950*

In Units and Their Value

Month	Civil Aircraft Engines: Number 1951	Number 1950	Value 1951	Value 1950	Value of Engine Parts 1951	Value of Engine Parts 1950	Value of Other Products 1951	Value of Other Products 1950	Total Value of All Products 1951	Total Value of All Products 1950
January	437	266	$2,228,000	$1,804,000	$4,306,000	$3,297,000	$709,000	$211,000	$7,243,000	$5,312,000
February	366	208	2,180,000	1,262,000	4,433,000	2,945,000	363,000	157,000	6,976,000	4,364,000
March	359	257	2,214,000	1,724,000	4,976,000	3,954,000	643,000	178,000	7,833,000	5,856,000
April	404	479	2,485,000	1,733,000	5,145,000	2,967,000	502,000	185,000	8,132,000	4,885,000
May	384	337	2,754,000	2,143,000	5,007,000	3,564,000	523,000	211,000	8,284,000	6,218,000
June	362	432	2,077,000	2,015,000	4,855,000	3,529,000	1,006,000	226,000	7,938,000	5,770,000
July	350	376	1,981,000	1,748,000	4,920,000	3,519,000	416,000	209,000	7,317,000	5,476,000
August	291	392	1,745,000	1,048,000	5,457,000	3,293,000	857,000	186,000	8,059,000	4,527,000
September	460	415	2,396,000	1,264,000	4,522,000	3,078,000	491,000	153,000	7,409,000	4,495,000
October	343	338	870,000	850,000	4,068,000	3,237,000	417,000	158,000	5,355,000	4,245,000
November	358	349	3,199,000	1,840,000	†	3,562,000	533,000	131,000	8,732,000	5,533,000
December	367	365	5,673,000	2,827,000	†	3,890,000	774,000	160,000	9,462,000	6,677,000
Total	4,581	4,314	$37,807,000	$20,058,000	$47,689,000‡	$41,135,000	$7,234,000	$2,168,000	$92,730,000	$63,361,000

* Industry Division, Bureau of the Census and Civil Aeronautics Administration. † Included in Values of Engines. ‡ 10 months total.

Personal and Transport Aircraft Shipments, 1951-1950*

In Units and Their Value

Industry Division, Bureau of the Census and Civil Aeronautics Administration.

Month	Personal Planes				Transport Planes				Total Civil Aircraft			
	Number		Value		Number		Value		Number		Value	
	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950
January	255	157	$4,859,000	$1,018,000	†	10	†	$11,085,000	255	167	$4,859,000	$12,103,000
February	239	217	3,667,000	1,101,000	†	8	†	6,810,000	239	225	3,667,000	7,911,000
March	262	322	1,592,000	1,515,000	11	4	$1,758,000	4,216,000	273	326	3,350,000	5,731,000
April	231	322	1,423,000	1,480,000	16	7	11,929,000	4,910,000	247	329	13,352,000	6,390,000
May	233	370	1,469,000	1,939,000	16	7	9,269,000	5,870,000	248	377	10,738,000	7,809,000
June	203	358	1,145,000	2,022,000	13	11	6,945,000	7,359,000	216	369	8,090,000	9,381,000
July	199	312	1,147,000	1,856,000	8	9	5,272,000	4,727,000	207	321	6,419,000	6,583,000
August	160	340	1,091,000	1,819,000	11	14	4,394,000	6,090,000	171	354	5,485,000	7,909,000
Sept.	184	289	892,000	1,525,000	†	12	4,633,000	6,566,000	184	301	5,525,000	8,091,000
October	124	198	705,000	1,242,000	†	6	3,126,000	3,875,000	124	204	3,831,000	5,118,000
Nov.	133	215	868,000	1,295,000	29	27	9,609,000	13,777,000	162	242	10,477,000	15,072,000
Dec.	110	291	882,000	1,801,000	41	13	12,173,000	6,198,000	151	305	13,055,000	7,999,000
Total	2,333	3,391	$19,740,000	$18,614,000	144‡	129	$69,108,000§	$81,483,000	2,477	3,520	$88,848,000	$100,097,000

† Included in Personal Planes. ‡ 8 months total. § 10 months total.

Civil Aircraft Shipments—by Months—1951-1950*

Classified by Total Rated Hp and Number of Places

Month	Total Rated Horsepower								Number of Places					
	1-99 hp		100-399 hp		400 and Over hp		Total Aircraft		1-2 Places		3-5 Places		Over 5 Places	
	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950
January	29	40	226	115	†	12	255	167	90	45	165	112	‡	10
February	30	46	209	169	†	10	239	225	70	57	169	160	‡	8
March	17	60	245	262	11	4	273	326	62	98	200	224	11	4
April	8	66	223	256	16	7	247	329	53	106	178	216	16	7
May	12	74	221	295	15	8	248	377	54	114	179	256	15	7
June	8	52	195	306	13	11	216	369	50	107	153	251	13	11
July	10	34	189	278	8	9	207	321	53	77	146	235	8	9
August	12	61	146	279	13	14	171	354	43	119	115	221	13	14
September	60	59	124	230	†	12	184	301	60	103	124	186	‡	12
October	124	35	•	163	•	6	124	204	124	46	▲	152	▲	6
November	133	17	•	198	29	27	162	242	133	64	▲	151	29	27
December	109	53	•	238	43	14	152	305	109	93	▲	198	43	14
Total	552	597	1,778■	2,789	148▼	134	2,478	3,520	901	1,029	1,429■	2,362	148▼	129

* Industry Division, Bureau of the Census and Civil Aeronautics Administration. † Included in 100-399 hp group. ‡ Included in 3-5 place group. • Included in 1-99 hp group. ▲ Included in 1-2 place grMup. ■ Nine months total. ▼ Eight months total.

Airframe Weights (Excluding Spares) of Civil Aircraft Shipments

In Thousands of Pounds, as reported by Bureau of the Census and C.A.A.

Month	1945	1946	1947	1948	1949	1950	1951
January	7.3	952.8	1,634.4	460.5	280.6	530.9	348.3
February	13.0	1,231.8	1,484.0	474.6	774.4	413.7	288.4
March	13.6	1,651.9	1,767.9	701.5	709.8	402.5	326.8
April	20.5	2,060.2	2,141.3	840.2	571.4	442.1	658.2
May	12.0	2,785.7	1,905.8	1,397.6	451.4	522.9	568.8
June	12.6	2,698.0	1,739.8	1,370.3	537.7	573.7	435.7
July	10.3	2,105.8	1,151.3	977.5	478.4	467.4	360.2
August	19.7	2,851.7	1,332.8	949.6	506.0	539.4	279.9
September	66.2	2,677.7	1,572.3	828.9	676.0	523.1	471.4
October	217.8	2,859.4	1,553.7	794.2	647.2	335.0	227.3
November	502.9	2,313.4	1,022.0	598.8	527.3	703.1	515.8
December	779.8	1,327.0	548.1	588.8	584.2	506.9	630.2
Total	1,675.7	25,515.4	17,853.4	9,982.5	6,744.4	5,960.7	5,111.0

Employment in Aircraft and Engine Plants

Industry Division, Bureau of the Census

Month	Complete Aircraft Plants		Aircraft Engine Plants	
	1951	1950	1951	1950
Jan.	230,155	163,531	53,106	40,231
Feb.	251,632	162,741	56,434	40,035
Mar.	263,931	162,846	58,610	40,272
Apr.	273,122	165,009	60,537	40,472
May	282,326	165,286	63,409	40,687
June	298,128	166,787	66,503	41,425
July	312,863	169,275	68,914	41,892
Aug.	322,068	180,304	71,293	42,169
Sept.	321,804	191,784	74,154	39,415
Oct.	331,102	200,729	63,430	45,499
Nov.	354,238	211,864	78,117	48,274
Dec.	362,985	222,091	81,268	50,638

Total Engine Hp of Civil Aircraft Engine Shipments

In thousands, as reported by Bureau of the Census

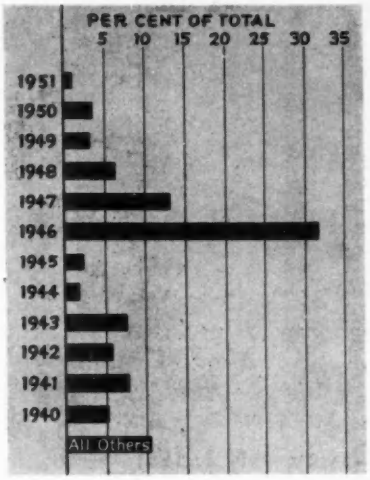
Month	1947	1948	1949	1950	1951
January	735.7	270.7	111.9	140.2	181.1
February	579.4	316.3	142.3	100.8	176.0
March	545.2	285.9	123.8	132.5	179.8
April	665.1	300.2	119.1	153.1	200.4
May	521.6	305.0	121.0	167.9	216.1
June	503.4	620.0	95.9	172.7	166.0
July	311.7	126.6	86.1	143.0	164.2
August	203.1	139.5	61.9	98.7	149.5
September	220.8	156.2	85.6	118.6	190.6
October	430.0	64.3	78.4	82.8	77.3
November	234.9	88.4	82.0	143.9	192.8
December	196.8	125.8	123.4	191.2	200.0
Total	5,147.7	2,798.9	1,231.4	1,645.5	2,093.8

Registrations of Civil Aircraft

As of July 1, 1951

Compiled from records of the Civil Aeronautics Administration

CIVIL AIRCRAFT IN USE BY MODEL YEAR



Civil Aircraft by Year of Manufacture

Year of Manufacture	Number of Aircraft			Per Cent of U. S. Total		
	Active	Inactive	Total	Active	Inactive	Total
1951	791	89	880	1.4	0.3	1.0
1950	2,665	398	3,063	4.6	1.2	3.4
1949	2,385	494	2,879	4.1	1.5	3.2
1948	4,664	1,102	5,766	8.1	3.3	6.4
1947	8,928	2,912	11,840	15.5	8.8	13.0
1946	20,377	8,498	28,875	35.4	25.6	31.7
1945	1,273	816	2,089	2.2	2.5	2.3
1944	997	748	1,745	1.7	2.3	1.9
1943	3,367	3,539	6,906	5.8	10.7	7.6
1942	2,617	2,713	5,330	4.5	8.2	5.9
1941	3,700	3,436	7,136	6.4	10.4	7.9
1940	2,507	2,323	4,830	4.3	7.0	5.3
Before 1940	3,435	6,007	9,442	6.0	18.2	10.4
Total	57,706	33,075	90,781	100.0	100.0	100.0

Registered Civil Aircraft by Make

Manufacturer	Number of Aircraft			Per Cent of Total		
	Active	Inactive	Total	Active	Inactive	Total
Piper	11,911	7,098	19,009	20.6	21.6	21.0
Aeronca	7,115	4,112	11,227	12.3	12.4	12.4
Cessna	7,591	2,828	10,419	13.2	8.6	11.5
Consolidated Vultee[1]	6,003	3,414	9,417	10.4	10.3	10.4
Taylorcraft	3,784	2,615	6,399	6.6	7.9	7.0
Luscombe	3,288	1,386	4,674	5.7	4.2	5.1
Boeing[2]	2,309	1,897	4,206	4.0	5.7	4.6
Ercoupe	2,921	1,202	4,123	5.1	3.6	4.5
Fairchild	1,741	2,325	4,066	3.0	7.0	4.5
Beech	2,765	630	3,395	4.8	1.9	3.7
All Others	8,278	5,568	13,846	14.3	16.8	15.3
Total	57,706	33,075	90,781	100.0	100.0	100.0

[1]—Includes Stinson. [2]—Includes Stearman.

Registered Civil Aircraft

By Engine Classification

Engine Type	Active	Inactive	Total	% of Total
Major Manufacturers				
One-Engine	53,472	29,852	83,325	94.14
Two-Engine	2,852	1,707	4,559	5.15
Three-Engine	2	4	6	.01
Four-Engine	545	65	610	.70
Total	56,872	31,628	88,500	100.00
Other Manufacturers				
One-Engine	625	N.A.	N.A.	....
Two-Engine	11	N.A.	N.A.	....
Three-Engine	7	N.A.	N.A.	....
Total	643	1,154	1,797	....
Glider, Lighter than Air and Balloons				
Total	191	293	484	...
Total All Types	57,706	33,075	90,781	....

N.A.—Not Available.

Two-Engine Civil Aircraft

By Hp Classification

Take-Off Hp.	Active	Inactive	Total	% of Total
1- 600	908	1,114	2,022	44.35
601-2,000	737	192	929	20.38
2,001-4,000	1,052	390	1,442	31.63
4,001 and over	155	11	166	3.64
Total	2,852	1,707	4,559	100.00

Three-Engine Civil Aircraft

By Hp Classification

Take-Off Hp.	Active	Inactive	Total	% of Total
1- 700	0	2	2	33.33
701-1,000	2	1	3	50.00
1,001 and over	0	1	1	16.67
Total	2	4	6	100.00

Four-Engine Civil Aircraft

By Hp Classification

Take-Off Hp.	Active	Inactive	Total	% of Total
1- 5,000	10	12	22	3.61
5,001- 6,000	240	35	275	45.08
6,001-10,000	249	18	267	43.77
10,001 and over	46	0	46	7.54
Total	545	65	610	100.00

Single-Engine Civil Aircraft

By Hp Classification

Take-Off Hp.	Active	Inactive	Total	% of Total
50 and under	261	1,044	1,305	1.57
51-100	30,688	16,772	47,460	56.95
101-200	14,078	5,585	19,663	23.60
201-350	5,884	3,631	9,515	11.42
351-500	2,319	2,433	4,752	5.70
501-700	214	332	546	.65
701 and over	29	55	84	.10
Total	53,473	29,852	83,325	100.00

Registered Aircraft and Pilot Certifications

As of Dec. 31	Registered Civil Aircraft	Certificated Airplane Pilots			
		Total	Airline Transport	Commercial	Private
1927	2,740	1,572	....	.....	.....
1928	5,104	4,887	....	.....	.....
1929	9,922	10,287	....	6,053	4,162
1930	9,818	15,280	....	7,847	7,433
1931	10,680	17,739	....	8,513	9,226
1932	10,324	18,594	330	7,967	10,297
1933	9,284	13,960	554	7,635	5,771
1934	8,322	13,949	676	7,484	5,789
1935	9,072	14,805	726	7,362	6,707
1936	9,229	15,952	842	7,288	7,822
1937	10,836	17,681	1,064	6,411	10,206
1938	11,159	22,983	1,159	7,839	13,985
1939	13,772	33,706	1,197	11,677	20,832
1940	17,928	69,829	1,421	18,791	49,607
1941	26,013	129,947	1,587	34,578	93,782
1942	27,170	166,626	2,177	55,760	108,689
1943	27,180	173,206	2,315	63,940	106,951
1944	27,919	183,353	2,046	68,449	111,858
1945	37,789	296,895	5,815	162,873	128,207
1946	81,002	400,061	7,854	203,251	189,156
1947	94,821	423,241	7,059	181,912	244,270
1948	95,997	491,306	7,762	176,845	306,699
1949	92,622	525,174	9,025	187,769	328,380
1950	92,809	N.A.	N.A.	N.A.	N.A.
1951	88,790	N.A.	N.A.	N.A.	N.A.

N.A.—Not available.

U. S. Civil Aircraft Registrations by States

As of July 1, 1951 and 1950

As reported by Civil Aeronautics Administration

State	1951 Active	1951 Inactive	1951 Total	1950 Active	1950 Inactive	1950 Total
Alabama	505	331	836	579	340	919
Arizona	659	454	1,113	716	431	1,147
Arkansas	712	447	1,159	760	418	1,178
California	6,496	3,479	9,975	6,820	3,688	10,508
Colorado	891	442	1,333	942	364	1,306
Connecticut	357	275	632	434	252	686
Delaware	142	155	297	153	143	296
Dist. of Col.	382	177	559	355	187	542
Florida	1,316	1,245	2,561	1,436	1,080	2,516
Georgia	598	606	1,204	752	479	1,231
Idaho	630	266	896	655	242	897
Illinois	3,168	1,768	4,936	3,489	1,370	4,859
Indiana	1,751	1,051	2,802	1,876	867	2,743
Iowa	1,705	596	2,302	1,961	490	2,451
Kansas	1,756	783	2,539	1,985	767	2,752
Kentucky	466	291	757	588	242	830
Louisiana	695	453	1,148	706	393	1,099
Maine	358	236	594	441	204	645
Maryland	522	345	867	545	272	817
Mass.	915	482	1,397	960	416	1,376
Michigan	2,610	1,507	4,117	2,840	1,351	4,191
Minnesota	1,425	740	2,165	1,545	588	2,133
Mississippi	420	313	733	424	275	699
Missouri	1,371	598	1,969	1,481	633	2,114
Montana	796	308	1,104	810	312	1,122
Nebraska	1,326	490	1,816	1,475	380	1,855
Nevada	260	125	385	229	167	396
New Hamp.	149	114	263	182	98	280
New Jersey	1,047	714	1,761	1,087	638	1,725
New Mexico	440	293	733	515	252	767
New York	2,742	1,590	4,332	3,018	1,420	4,438
North Carolina	1,001	692	1,693	1,132	570	1,702
North Dakota	821	464	1,285	831	428	1,259
Ohio	2,663	1,602	4,265	2,864	1,290	4,154
Oklahoma	1,280	821	2,101	1,442	776	2,218
Oregon	1,190	565	1,755	1,295	508	1,803
Pennsylvania	2,639	1,435	4,074	2,803	1,277	4,080
Rhode Island	109	95	204	131	73	204
South Carolina	352	320	672	433	254	687
South Dakota	773	238	1,011	744	249	993
Tennessee	552	465	1,017	644	382	1,026
Texas	4,320	2,384	6,704	4,438	2,474	6,912
Utah	310	175	485	368	174	542
Vt.	89	65	154	123	63	186
Va.	771	563	1,334	890	479	1,369
Wash.	1,434	705	2,139	1,504	722	2,226
W. Va.	370	247	617	448	201	649
Wis.	1,304	791	2,095	1,482	630	2,112
Wyo.	327	196	523	375	162	537
Total	56,915	32,497	89,412	61,706	29,471	91,177

U. S. Civil Aircraft In Scheduled Air Carrier Service, July 1, 1951

As reported by Civil Aeronautics Administration

Airline	Aircraft Manufacturer and Model: Boeing 377	CV* 240	Curtiss C-46	Douglass DC-3	Douglass DC-4	Douglass DC-6	Lockheed 18	Lockheed 49	Lockheed 649	Lockheed 749	Martin 202	All Others	Total
Airnews, Inc.				2								4	6
Alaska Airlines				3	4								7
Alaska Coastal												11	11
All American				11									11
American Airlines		79			8	59							146
Bonanza Air Lines				4									4
Braniff Airways				13	9	6							28
Capital Airlines				28	23			5					56
Caribbean-Atlantic				3									3
Central Airlines				5									5
Chicago & Southern				12					5	1			18
Colonial Airlines				8	4								12
Continental Airlines		5		11									16
Delta Air Lines				20	6	7							33
Eastern Air Lines				49	19					20			88
Ellis Air Lines												6	6
Empire Air Lines				5									5
Flying Tiger Line			21										21
Frontier Airlines				12									12
Hawaiian Airlines				13									13
Helicopter Air Service												6	6
Inland Airlines				4									4
Lake Central Airlines				4									4
Los Angeles Airways												5	5
Mid-Continent		3		23									26
Mid-West Airlines												6	6
National Airlines					6	8	11						25
Northeast Airlines		5		8									13
Northern Consolidated				3									3
Northwest Airlines	10			2	20						2		34
Ozark Airlines				7									7
Pacific Northern				4	1								5
Pan American Grace				10	3	6							19
Pan American World	28	16		9	60				19				132
Piedmont Aviation				9									9
Pioneer Air Lines				11									11
Reeve Aleutian				3									3
Riddle Aviation			4										4
Robinson Airlines				5									5
Slick Airways			21			1							22
Southern Airways				10									10
Southwest Airways				10									10
Trans-Pacific				5									5
Trans-Texas				9									9
TWA				47	14			29		35	12		137
United Air Lines	7			56	23	49							135
U. S. Airlines			6										6
West Coast Airlines				6									6
Western Airlines		10		6	5								21
Wien Alaska				2									2
E. W. Wiggins												5	5
Wisconsin Central				6									6
Total	45	118	52	458	205	136	11	34	24	56	14	43	1,196

Airports and Landing Fields by Size and by Type

As of December, 1951

Civil Aeronautics Administration

State	Airports by Size: Sub I & I	II	III	IV	V	VI & Over	Total Airports	Airports by Type: Municipal	Commercial	CAA Intermediate	Military	All Others	Total Airports
Alabama	40	17	14	10	1	2	84	38	21	0	16	9	84
Arizona	70	43	21	14	13	3	174	44	24	1	26	79	174
Arkansas	54	11	10	9	0	0	84	34	23	0	0	27	84
California	285	77	53	38	33	24	510	161	150	4	48	149	510
Colorado	50	26	22	1	0	6	105	54	29	2	2	18	105
Connecticut	16	1	2	5	1	0	25	8	13	0	0	4	25
Delaware	12	3	1	1	0	2	19	2	9	0	1	7	19
District of Columbia	0	0	0	1	1	1	3	1	0	0	2	0	3
Florida	43	24	38	41	11	19	176	85	37	2	47	5	176
Georgia	42	17	21	23	2	6	112	50	12	1	10	33	112
Idaho	123	16	7	2	0	3	151	82	11	0	1	57	151
Illinois	102	43	13	9	4	0	171	42	106	0	4	18	171
Indiana	87	29	10	8	2	0	136	36	86	0	4	10	136
Iowa	137	15	5	8	0	1	166	57	42	1	2	64	166
Kansas	122	26	14	5	9	8	184	98	38	0	9	39	184
Kentucky	38	3	5	4	0	1	51	14	19	0	2	16	51
Louisiana	47	14	12	8	2	3	86	37	13	0	4	32	86
Maine	29	6	12	2	2	3	64	25	19	0	4	16	64
Maryland	23	12	4	6	0	4	49	7	23	0	6	13	49
Massachusetts	44	11	9	7	0	3	74	23	42	0	5	4	74
Michigan	171	42	14	13	1	3	244	122	79	0	5	38	244
Minnesota	72	34	5	4	1	1	117	84	31	0	1	1	117
Mississippi	46	12	16	8	1	1	86	32	27	1	5	18	86
Missouri	69	17	10	5	3	0	104	49	40	1	1	13	104
Montana	85	15	6	6	2	4	118	81	15	1	1	20	118
Nebraska	102	12	5	2	2	11	134	71	33	1	1	28	134
Nevada	38	4	10	9	9	1	71	13	13	5	5	35	71
New Hampshire	24	4	3	2	0	1	34	12	16	0	1	5	34
New Jersey	52	12	7	5	1	1	78	3	61	0	4	5	78
New Mexico	46	18	7	10	7	7	95	29	17	3	4	37	95
New York	180	30	12	16	5	2	245	48	114	1	8	74	245
North Carolina	82	19	18	11	2	4	136	36	49	0	11	20	136
North Dakota	108	13	2	8	0	0	131	64	35	4	0	28	131
Ohio	166	40	8	10	2	2	228	42	149	2	4	31	228
Oklahoma	90	21	13	13	7	3	147	84	34	0	5	24	147
Oregon	84	9	11	13	4	2	123	45	31	2	1	44	122
Pennsylvania	159	28	14	7	1	0	209	46	139	1	6	17	209
Rhode Island	5	1	1	1	2	0	10	3	5	0	2	0	10
South Carolina	28	13	3	11	6	3	64	36	16	1	5	6	64
South Dakota	50	10	6	3	2	2	73	43	17	0	1	7	73
Tennessee	29	13	3	5	3	0	63	26	23	1	3	10	63
Texas	377	125	53	46	26	14	641	168	125	4	44	300	641
Utah	23	14	12	4	5	1	59	37	8	6	3	5	59
Vermont	17	0	3	1	0	0	21	10	10	0	1	0	21
Virginia	88	19	9	11	2	2	131	29	63	1	14	24	131
Washington	110	25	11	17	4	8	175	72	47	1	11	44	175
West Virginia	41	8	2	3	1	0	55	14	25	2	0	14	55
Wisconsin	117	31	14	3	1	1	167	66	83	2	1	15	167
Wyoming	23	10	12	6	1	1	53	34	10	2	0	7	53
Totals	3,869	993	573	455	182	164	6,236	2,314	2,052	68	342	1,470	6,236

Class I airports are for private owners of smaller type aircraft. (Sub I airports are those below Class I standards); Class II, private owners of largest type aircraft and feeder transport aircraft; Class III, present day transport aircraft; Class IV and over, largest aircraft now in use and those planned for immediate future.

Municipal—Public use and public services, municipally owned and/or operated. Commercial—Public use and public services, privately owned and operated. CAA-Intermediate—Public emergency use, no services, CAA operated. Military—Public restricted, military operated. All others—Public emergency use only, no public services, privately or government owned.

Shipments of Aircraft Propellers and other products of Their Plants

All Figures in Thousands of Dollars

As reported by the Industry Division, Bureau of the Census

Period	Total Value of All Products	AIRCRAFT PROPELLERS AND PARTS: Total	For Military Use: Total	Propellers	Parts	For Civil Use: Total	Propellers	Parts	All Other Products
1951									
First quarter	$22,360	$20,589	$16,244	$12,048	$4,196	$4,345	$2,117	$2,228	$1,771
Second quarter	28,074	25,140	19,443	(d)	(d)	5,697	2,991	2,706	2,934
Total—Six Months 1951	$50,434	$45,729	$35,687	(d)	(d)	$10,042	$5,108	$4,934	$4,705
1950									
First quarter	$19,198	$17,463	(d)	(d)	(d)	$2,828	$1,596	$1,232	$1,735
Second quarter	20,748	16,376	(d)	(d)	(d)	2,939	1,416	1,523	4,372
Third quarter	17,999	14,974	$12,247	(d)	(d)	2,727	1,450	1,277	3,025
Fourth quarter	20,426	15,378	12,849	$8,228	$4,621	2,529	1,202	1,327	5,048
Total—1950	$78,371	$64,191	$53,168	$37,815	$15,353	$11,023	$5,664	$5,359	$14,180

1952 U. S. AND FOREIGN MILITARY AIRCRAFT

MAKE AND MODEL	POPULAR NAME	Type	Number of Crew	ENGINE: Make and Model	ENGINE: Number Used	ENGINE: Total Take-off Hp. at Specified RPM	ENGINE: Total Take-off Thrust at Specified RPM	Fuel Capacity (Gallons)	Oil Capacity (Gallons)	DIMENSIONS (Ft. & In.): Span	DIMENSIONS (Ft. & In.): Overall Length	DIMENSIONS (Ft. & In.): Height (Taxi Position)	DIMENSIONS (Ft. & In.): Wing Area (Gross) Sq. Ft.	DIMENSIONS (Ft. & In.): Aileron Area Sq. Ft.	WEIGHTS (Lb.): Empty	WEIGHTS (Lb.): Useful Load	WEIGHTS (Lb.): Gross	WEIGHTS (Lb.): Pay Load	PERFORMANCE: Maximum Speed at Altitude	PERFORMANCE: Cruising Speed at Altitude	PERFORMANCE: Range in N'ties at Cruising Speed	PERFORMANCE: Initial Climb (Feet per Minute)	PERFORMANCE: Service Ceiling with Normal Load (Feet)
UNITED STATES																							
Beech 45	Menter	T	2	Cont E-255-B	1	225 2600	None	50	3	32' 10"	25' 10"	9' 7"	177.6	11.5	2065	695	2750		168 SL	167 10000	770	1210	21200
Boeing KC-97E	Stratofreighter	TC,Ta	6	P&W R-4360-35	4	14000	None	7790		141' 3"	101' 4"	38' 3"			78000	70000	148000	53000	375	300*	4600*		30000*
B-47A	Stratojet	MB	3	GE J-47	6	None	31200			116' 0"	106' 0"	28' 0"					185000	20000*	600*	3000*			35000*
B-50D	Superfortress	MB	11	P&W R-4360-35	4	14000	None			141' 3"	99' 0"	32' 9"					164500	28000	400*	300*	4000*		40000
Cessna L-19A	Bird Dog	OR	1	Cont O-470-11	1	213 2600		42	2½	36' 0"	25' 0"	7' 6"	174.0	18 3	1498	602	2100	465	116 5000	104 5000	530	1290	21200
LC-126-C		ASR	1	Jacobs R755-A2	1	300 2200		60	5	36' 2"	27' 4"	7' 2"	218.0	12.3	2250	1100	3350	590	180 S.L.	165 7000	700*	1200	18300
Chance Vought AU-1	Corsair	F	1	P&W R-2800-83WA	1			234	27½	41' 0"	34' 6"	13' 2"	314.0		9791	5865	12899						
F7U-3	Cutlass	F	1	West J-46	2																		
Chase C-123B	Avitruc	TC	2	P&W R-2800-52W	2	5000 2800	None			110' 0"	75' 9"	34' 1"	1223 2	83.3	29906	24094	54000	19600	250	205	2500	1000	22500
YC-122C	Avitruc	TC	2	Wr R-1820-101	2	2850 2700	None			95' 8"	61' 8"	24' 8"	812 8	46.7	20128	12822	32940	8000	225	185	2025	1200	24400
Convair B-36F, RB-36F		(d)	16	(a)	10	22800	20800*	21000	1200	230' 0"	162' 0"	46' 9"	4772.0	240.0			358000		435*		10000		45000*
XP5Y-1		P	12	All XT-40-A-4a	4	22000											120000*		350*				
XF-92A	Convair Delta	I	1	All J-33-A-29	1	None				31' 0"	44' 0"	15' 0"	425.0				15000						
T-29B		T	3-4	P&W R-2800-CA-18	2	4800	None	1550	45	91' 9"	74' 8"	26' 11"	817.0	44.0	29723	13852	43575		316 13500	260 13500	1500	1230	23800
YB-60		HB		P&W J-57	8																		
Douglass C-124A	Globemaster II	TC	5	P&W R-4360-20W	4	14000 2700	None	11000	330	173' 3"	127' 1"	48' 3"	2510.0	132.4	96191	78681	174872	52165			6030		
F3D	Skyknight	NF	2	West J-34	2	None																	
AD	Skyraider	A	1 2 3	Wr R-3350-26W	1	2700	None			50' 0"	38' 10"	15' 7"	400.0		10519	5546	16065						
A2D	Skyshark	A	1	XT40	1																		
F4D	Skyray	F	1																				
R4D-8		Tr	3	Wr 1820-80	2	2950 2800		1626	56	90' 0"	67' 8"	18' 3"	909.0	71.9	20300	10700	31000	7341	270 5900	245 15000	2750	1350	27000
R6D-1(C-118A)	Liftmaster	Tr	5	P&W R2800-52W	4	10000 2800		5406	41½	117' 6"	105' 7"	28' 8"	1463.0	85.1	54875	48125	103000	25000	368 19700	315 22400	4010	1080	26300
Fairchild C119B	Flying Boxcar	TC	5	P&W R-4360-20W	2	6500 2700	None	2624	120	109' 3"	86' 6"	26' 3"	1447.0	112.0	38012	25988	64000	20000	256 18000				23900
XC-120	Packplane	TC	5	P&W R-4360 20	2	7000 2700	None	2624	120	109' 3"	83' 0"	24' 10"					70700	18000					21700
C119C	Flying Boxcar	TC	5	P&W R-4360-20WA	2	7000 2700	None	2624	120	109' 3"	86' 6"	26' 3"	1447.0	112.0	39832	32468	72300	24000	245 18000				20600
Grumman	Albatross		6	Wr R-1820-76A	1	1425 2700		675	58	80' 0"	60' 8"	24' 3"	833 0		20100		27025		230 16800		2700	1400	
F9F-5	Panther	F	1	P&W J-48	1														600*				
AF-2S	Guardian	AS		P&W R-2800	1	2300	None																
Lockheed T-33		T			1	None				39' 0"	38' 0"	12' 0"	238 0				12200						
F-94		I				None				39' 0"	40' 0"	13' 0"	238 0				12200						
P2V-4	Neptune	P								100' 0"	78' 0"	28' 0"	1000 0				78000						
P2V-5	Neptune	P								100' 0"	76' 0"	28' 0"	1000 0										
R70-1	Constellation	TC								123' 0"	113' 7"	23' 0"	1650 0										
PO2W	Constellation																						
Martin P5M-1	Martin	AS	7	Wr 3350	2	6500	None			118' 0"	90' 3"	35' 2"					70000*						
XB-51		IVB	2	GE J 47	3	None	15600*			55' 0"	85' 0"	17' 0"											
P4M-1	Mercator	AS	9	(b)	4	6500	8000*			114' 0"	98' 2"	29' 2"					80000*				2000*		
B-61	Matador	PB																					
B-57A	Canberra	LB	3	Wr J-65	2		14400			64' 0"	65' 5"	15' 3"											
McDonnell F2H-2	Banshee	F	1	West J 34	2		6000			41' 0"	39' 0"	14' 0"							600		2000*		
F2H-2P	Banshee	P	1																600				
F2H-3	Banshee	F			2																		
F2H-2N	Banshee	NF																					
F3H-1	Demon				1																		

North American	AJ-1		A	3	(c)	3	4800	4000*									34000				350*						40000*
	F-86E	Sabre	F	1	GE J-47A	1	None	5200			37' 0"	37' 0"	14' 0"					13715			700*			800*			40000*
	T-6G	Texan	T	2	P&W R-1340-AN-1	1	600	None	140		42' 0"	29' 6"	10' 10"	258.1	11.4	4271	1346	5617			212	146		670	1613	24750
	T-6D	Sabre Series	I	1	GE J-47A*	1	None	5200*			37' 0"	41' 0"	14' 0"														
	T-28		T	2	Wr R-1300-1	1	800	None	125		40' 1"	32' 0"	12' 8"	268.0	13.3	5111	1254	6365			288-5800	190		1008	2570	29800
	F-86F	Sabre	F	1	GE J-47	1					37' 0"	37' 0"	14' 0"			"					650*			800*			45000*
	F-86H	Sabre	F	1	GE J-47	1					37' 0"	39' 0"	15' 0"								650*-			800*			45000*
	FJ-2	Fury	F	1	GE J-47	1					37' 0"	37' 0"	14' 0"														"
Northrop	F-89	Scorpion	I	2	All J-35-A-21	2					56' 0"	53' 0"	17' 0"	606.0				30000*			600						40000*
Republic	XF-91		I	1	GE J-47*	1	None	5200			30' 0"	49' 0"	18' 0"														
	F84-G	Thunderjet	FB	1	All J-35A-29	1	None	5600	920		36' 0"	38' 0"	12'*			11000		18000			630-SL			1000*			45000*
	F-84F	Thunderjet	FB	1	Wr J-65	1		7200			34' 0"	43' 0"	14' 0"					25000			630*-			1000*			45000*
Ryan	L-17B		L	1	Cont E-185-3	1	205-2600	None	59½	2½	33' 4"	27' 3"	8' 8"	185.0	10.3	1838	912	2 50			156-SL	150-3500	750	830	15800
BRITISH																												
Armstrong-Whitworth	NF-11	Meteor	NF	2	RR Derwent	2	None				43' 0"	48' 6"	13' 6"	374.0	26.7												
Auster	T-MK7		T	3	DH GypsyMajorMK-7	1	145-2550	None	29	3¼	36' 0"	23' 4"	8' 8"	184.5	18.0	1330	660	2210			122-1000	107-1000	376	600	12000
	B4	Ambulance/Freight	Am,F	1	BI 702	1	180-2600		27½	3	37' 0"	24' 8"	9' 4½"	189.5	9.3	1642	600	2600			121-1000	105-1000	303	730	
	S		OR	2	BI 702	1	180-2600				36' 0"	23' 9"	9' 3"	185.0	9.3						118-1000	102-1000	230	1200	16000
Blackburn	GAL-60		TC		Br Hercules	4		None			162' 0"	99' 2"	33' 0"	2916.0	168.0												
Boulton Paul	P-108A	Balliol T-2	T	2	RR Merlin 35	1	1280-3000		125	7½	39' 4"	35' 1"	12' 6"	250.0	15.2	6731	1679	9410			290-9000	265-8000	670	1790	32300
	P-108B	Sea Balliol T-21	T	2	RR Merlin 35	1	1280-3000				39' 4"	35' 1"		250.0	15.2												
DeHavilland	DH-115	Vampire Trainer	T	2	DH Goblin 3	1	None	3350-10750	636	15	38' 0"	34' 6"	6' 3"	262.0		6350	4450	12800			540-30000	325-30000	1080	4500	40000
	DH-100	Vampire NFMK10	NF	2	DH Goblin 3	1	None	3350-10750	636	15	38' 0"	34' 7"	6' 3"	262.0													
	DH-112, MK1	Venom	F	2	DH Ghost	1	None				38' 4"	34' 6"	6' 3"														
	DH-100, MK30	Vampire	F	1	RR Nene	1		8000	330																		
	DH-110		NF		RR Avons	2																					
	DHC-1A	Chipmunk	T	2	DH Gypsy Major 1C	1	136-2400		31	3²¹/₃₂	34' 4"	25' 5"	7' 0"	172.5	13.9	1277		1930			140-SL	124-SL	481	900	17200
English Electric	B-2	Canberra	B	3	RR Aven	2					64' 0"	65' 6"	15' 7"														
Gloster	Mark 7	Meteor 7	T	2	RR Derwent 8	2		7000	325	6½	37' 2"	43' 6"	13' 0"	350.0	27.9	10545		14140			581-10000	535-20000	950	7920	46900
	Mark 8	Meteor 8	F	1	RR Derwent 8	2		7000	420	6¼	37' 2"	43' 6"	13' 10"	350.0	27.9	10659		15675			565-10000	414-20000	950	6950	43000
Handley Page	CMK2	Hastings	TC	5	Br Hercules	4			3821	168	113' 0"	81' 8"	22' 6"	1408.0	75.4			80000	20311								
	CMK2	Hastings	TC	5	Br Hercules	4	6700		3821	168	113' 0"	81' 8"	22' 6"	1408.0	74.4	48427	31573	80000	20311		348-22200	291-15200	1671	780	26500
	CMK3	Hastings	Tr	5	Br Hercules 737	4	8160		3821	168	113' 0"	82' 1"	22' 6"	1408.0	75.4	48879	31121	80000	20311		302-6100	238-20000	1555	1190	20560
Hawker		Sea Hawk	I		RR Nene 4	1		5000			39' 0"	40' 0"		278.0													
	P-1067		I		RR Avon	1																					
Percival	P-57	Sea Prince	T	1-2	Av Leonides	2	1100	None	271	15	56' 0"		16' 1"	385.0							229-5000	190-10000	752	1850	23400
	T-Mark I	Provost	T	2	Av Leonides MK25	1	550-3000		66	6	35' 2"	29' 0"	8' 10"	214.0	24.2	3220		4230			174-2500	155-2800	443	2200	25000
A. V. Roe	Mark I	Avro Schakleton	RB	10	RR Griffon	4		None			120' 0"	77' 6"	17' 6"														
	Mark I	Avro Ashton		5	RR Nene	4	None	20000	3720		120' 0"	89' 6"	30' 9"	1421.0				62000									
	Mark 19-22	Avro Anson	T	2	ArS Cheetah XV	2	840	None	168	15	57' 6"	42' 3"	13' 10"	440.0	31.2	8200	2200	10400			171-5000	150-5000	610	700	17060
	707-48	Avro Delta			RR Derwent	1					33' 0"	41' 10"	12' 6"			10000											
	707-A				RR Derwent	1					34' 2"	42' 9"	11' 7"														
Saunders-Roe	SR/A1		F	1	M-V Beryl	2	None	7700			46' 0"	50' 0"	17' 0"	415.0													
Vickers-Armstrong	MK-T1	Varsity	T						900																		27000
		Seagull							242																		
	MK-F1	Attacker	I						251																		
	535	Supermarine			RR Nene	1																					
	Valetta MK-T-3	Valetta Classroom	T	16																							
		Supermarine 508	I	1	RR Avon	2																					
	MK-B-1	Valiant	MB		RR Avon	4																					
	MK-F-1	Supermarine Swift	I	1	RR Avon	1																					
Westland Wyvern	MK-IV		F	1	Ars Python	1					44' 6"	42' 3"	15' 9"														
FRENCH																											
Breguet	960	Vultur	F	2	(f)	2	1350	5292			54' 10"	43' 10"	17' 0"	118.1	9.2			20948									
S.N.C.A.N.	Nord 2501		Tr	3	Br Hercules 738	2	4080-2800		1345	73¼	108' 7"	71' 9"	20' 9"	1085.0	42.2	29850	16350	43200	11700		275-10000	210-10000	1550	1230	25000
S.N.C.A.S.O.	SO-95	Corse II	T,OR	3	Sn 129-82-201	2	1200		249	18½	59' 0"	40' 4"	10' 6"	405.0	19.0	8850		12346			245-7980	184-1640	745	1120	21350

For abbreviations see page 244

For Directory of the Manufacturers listed above, see page 338

U. S. AND FOREIGN MILITARY AIRCRAFT—*concluded*

MAKE AND MODEL	POPULAR NAME	Type	Number of Crew	ENGINE: Make and Model	Number Used	Total Take-off Hp. at Specified RPM	Total Take-off Thrust at Specified RPM	Fuel Capacity (Gallons)	Oil Capacity (Gallons)	DIMENSIONS (Ft. & In.): Span	Overall Length	Height (Taxi Position)	Wing Area (Gross) Sq. Ft.	Aileron Area (Sq. Ft.)	WEIGHTS (Lb.): Empty	Useful Load	Gross	Pay Load	PERFORMANCE: Maximum Speed at Altitude	Cruising Speed at Altitude	Range in Miles at Cruising Speed	Initial Climb (Feet per Minute)	Service Ceiling with Normal Load (Feet)
ITALIAN																							
Aer Macchi MB-323		T	2	P&W R-1340	1	610		86	9¼	40′ 9″	32′ 1″	13′ 2″	236.8		3726		4980	1234	232-9500	203-6500	675	1657	24600
Fiat G-46-2B		T	2	DH Gypsy Queen 30	1	245-2500		42	7¼	34′ 1″	27′ 10″	7′ 10″	172.2	11.0	2450	700	3150		204-SL	171-10000	700	1060	20000
G-46-4B		T	2	AR MK-1950	1	222-2400		42	7¼	34′ 1″	27′ 10″	7′ 10″	172.2	11.0	2425	720	3145		194-SL	164-4300	580	1025	17500
G-49-1		T	2	Av Leonides	1	550-3000		115	10	42′ 8″	31′ 8″	9′ 1″	262.4	20.8	4300	1200	5500		233-3500	177-SL	980	1200	28500
G-49-2		T	2	P&W R-1340-S3-H1	1	600-2250		115	10	42′ 8″	31′ 2″	8′ 8″	262.4	20.8	4300	1400	5700		236-5000	196-SL	740	1725	25500
G-59-4A		T	1	RR Merlin	1	1400-3000		127	9½	38′ 10″	31′ 1″	12′ 1″	227.0	14.2	6180	1450	7630		380-21000	303-18500	620	3500	39700
G-59-4B		T	2	RR Merlin	1	1400-3000		100	9½	38′ 10″	31′ 1″	12′ 1″	227.0	14.2	6285	1180	7465		380-21000	303-18500	580	3500	39700
G-80-1B		T	2	DH Goblin 35	1		3350-10750	350		36′ 1″	40′ 8″	13′ 3″	270.6	14.3	9950	2950	11900		550-SL	495-29500	875	4900	44300
G-80-2B		T	2	RR Nene RN2-21	1		5000-12500	330		36′ 1″	40′ 8″	13′ 3″	270.6	14.3	9080	2820	11500		570-SL	523-29500	950	7400	49000
Piaggio P-136-M		T,ASR	2	Fr 6A8-215-B9F	2	430-2500		132	5½	44′ 3″	35′ 5″	11′ 6″	260.5	17.8	4100	1400	5500		171-SL	135-5000	440	980	16100
P-148-MT		T	1	Lyco O-435-A	1	190-2550		45	3	30′ 5″	27′ 7″	7′ 10″	200.0	16.4	1931	715	2646		147-SL	127-3000	570	900	18045
SPANISH																							
Hispano HS-42-B1		I	2	ArS Cheetah XXV	1	475-2700		106	6¾	32′ 10″	26′ 2″	11′ 2″	175.0	15.5	2830		3940		190-4850	170-5410	485	1500	20800
HA-43-B1		I	2	ArS Cheetah XXV	1	475-2700		106	6¾	32′ 10″	26′ 2″	11′ 2″	175.0	15.5	3540		4615		185-4760	170-5120	404	1130	16100
HA-1109-K1L		I	1	Own HS-12-Z-17	1	1280-2650		110	9½	32′ 6″	29′ 6″	12′ 6″	172.8	6.3	5450		6370						
SWEDISH																							
SAAB 29	J-29	F	1	DH Ghost	1		6000-10250			36′ 1″	33′ 3″	12′ 4″	258.0						650-				
91B	Safir	T	1	Lyco O-435-A	1	190-2250		48	3	34′ 9″	26′ 0″	7′ 2″	146.0		1560	730	2310		171-SL	168-10000	690	1140	18000

ABBREVIATIONS

*—Plus.
*—With afterburner.
(a)—Six P&W R-4360-53 and four GE J-47 engines.
(b)—Two P&W R-4360-20W and two All J-33-A10 engines.
(c)—Two P&W R-2800 and one All J-33 engines.
(d)—B-36F is a bomber, RB-36F is a reconnaissance bomber.
(f)—One Nene Hispano and one Mamb engines.
A—Attack.
All—Allison Div.
Am—Ambulance.
AR—Alfa Romeo.
Ars—Armstrong—Siddeley Motors, Ltd.
AS—Anti-submarine.
ASR—Air-sea rescue.
Av—Alvis, Ltd.
B—Bomber.
Bl—Blackburn.
Br—Bristol Aeroplane Co., Ltd.
Cont—Continental Motor Corp.
DH—De Havilland Aircraft Co., Ltd.
F—Fighter.
FB—Fighter bomber.
Fr—Franklin (Aircooled Motors Inc.)
GE—General Electric Co.
HB—Heavy bomber.
I—Interceptor.
L—Liaison.
LB—Light bomber.
Lyco—Lycoming-Spencer Div.
MB—Medium bomber.
M-V—Metropolitan-Vickers.
NF—Night fighter.
OR—Observation and reconnaissance.
P—Patrol.
PB—Pilotless bomber.
Ph—Photographic.
P&W—Pratt & Whitney Aircraft Div.
RB—Reconnaissance bomber.
RR—Rolls Royce, Ltd.
SL—Sea level.
Sn—Snecma.
T—Trainer.
Ta—Tanker.
TC—Troop and cargo transport.
Tr—Transport
West—Westinghouse Electric Corp.
Wr—Wright Aeronautical Corp.

For Directory of the Manufacturers listed above, see page 338

1951 Personal and Executive Aircraft Shipments

Personal Aircraft Council, Aircraft Industries Association

Manufacturer	Number of Aircraft	Manufacturers' Net Billing Price
Beech		
Bonanza	377	$7,708,000
Twin Bonanza	4	
D-18	48	
Luscombe		
GC-1B	14*	132,000*
8F	28	
Cessna		
140A	38	3,573,000
170A	416	
190	28	
195	69	
Mooney		
M-18	26	$45,000
Piper		
Family Cruiser	1	3,933,000
Tandem Trainer	480	
Pacer	599	
Clipper	1	
Taylorcraft	14	37,000
TOTAL	2,302†	$16,887,000†

* Includes 7 GC-1B's valued at $27,000 shipped by Texas Engineering. † Includes shipments by Aeronca of 12 Champions, 20 Sedans and 2 7CCM's valued at $101,000; Bellanca of 11 Cruisemasters valued at $106,000; Call Air of 3 Call Airs valued at $13,000; Engineering & Research of 7 Model G's valued at $24,000 and Ryan of 104 Navions valued at $1,215,000.

1952 U. S. ROTARY WING AIRCRAFT

MAKE AND MODEL	GENERAL					ENGINE			MAIN ROTOR								ANTI-TORQUE ROTOR					WEIGHTS (Lb.)			PERFORMANCE						LANDING GEAR	
	A. T. C. Number	Number of Seats	Fuel Capacity (Gal.)	Octane Number Recommended	Oil Capacity (Gal.)	Make and Model	Number Used	Rated Hp. at Specified R. P. M.	Number Used	Location	Blades per Rotor	Diameter of Rotor (Ft. In.)	Blade Area (Sq. Ft.)	Type (If more than one used)	Rotor R. P. M. at Cruising Speed	Disc Area (Sq. Ft.)	Number of Blades	Rotor Diameter (Ft. In.)	Blade Area (Sq. Ft.)	Rotor R. P. M. at Cruising Speed	Disc Area (Sq. Ft.)	Gross (Normal Load)	Empty	Useful Load	Max. Speed at Altitude	Cruising Speed at Altitude	Fuel Consumption Cruising Speed (Lb./hr.)	Range (Miles) at Cruising Speed	Rate of Climb: Maximum (Ft./min.)	Rate of Climb: Vertical (Ft./min.)	Service Ceiling—Normal Load	Type	Tread—Main Gear
American XA-5	N	2	50		N	Own AJ-9.4	2	80-	1	C	2	36' 0"				1018	N					1800			83	70	R	R	R	R	R	Tri	
XA-6	N	1	R	Any	N	Own AJ-6.0	2	35-	1	C	2	23' 0"	41.6				N					230			90	60	R	R	R	R	R	Tri	
Bell 47D-1		3	29		2	Frank 6V4-200-C32	1	200-3100	1	(a)	2	35' 1½"	35.3		360	965	2	5' 8½"	2.40	1800	25.6	2350	1490	860	93-SL	78-SL	72	170	920	400	11000	Skid	7' 6"
Bell 47D-1		3	29		2	Frank O-335-5	1	200-3100	1	(a)	2	35' 1½"	35.3		360	965	2	5' 8½"	2.40	1800	25.6	2350	1490	860	93-SL	78-SL	72	170	920	400	13000	Skid	7' 6"
H-13D		2-3	29			Frank R-1340-50	1	600-2250	1	(c)	2	47' 6"	71.0		279	1773	2	9' 0"	10.50	1375	58.8	6800	4200	2400	120-SL	95-SL	210	400	1030	400	10000	Qua	7' 0"
H-12		9-10	121	91	16		1	600-2250	1	(c)	2	47' 6"	71.0		279	1773	2	9' 0"	10.50	1375	58.8	6800	4200	2400	120-SL	95-SL	210	400	1030	400	10000	Qua	7' 0"
HTL-4		2-3	29		2	Frank O-335-5	1	200-3100	1	(a)	2	35' 1½"	35.3		360	966	2	5' 8½"	2.40	1800	25.4	2350	1490	860	93-SL	78-SL	72	170	920	400	7800	Qua	5' 10½"
HSL-1		R	R		R	P&W R-2800	1	R	2	Tan	2	R	R		R	R	R																
Doman LZ-4	N	7	110	100	4	Lyco SO-580-B	1	400-3300	1		4	48' 0"	73.6		200	1810	3	9' 0"	6.45	1095	63.9	4419	2890	1599	105-3200	82-3030	111	280	1300	600	1800	Qua	7' 2"
Doman LZ-5	N	6	110	100	5	Lyco SO-580-D	1	400-3300	1		4	48' 0"	73.6		180	1810	3	9' 0"	5.90	1000	63.9												
Gyrodyne 2C		6	100		8	P&W R-985-B4	1	450-....	2	CA	2	48' 0"	51.0	CA	192	1808						5700	3800	1900	87-SL	74-....	225	214	1100	625	16500	Qua	12' 8"
Gyrodyne .3		18	163		20	P&W R-1340	2	600-....	2	CA	2	62' 0"	.....	CA	192	.....						11000	7800	3200	170-....	150-....	465	294	2140	1090	18900	Tri	12' 0"
																																Skid	7' 8"†
Hiller UH-12B	6H2	3	28	80	10	Frank 6V4-200-C33	1	200-3100	1	CG	2	35' 0"	32.3		330	2.6	2	5' 6"	2.23	390	23.8	2500	1753*	744*								Qua	8' 0"
Kamen HTK-1		3				Lyco O-435	1	240-....	2	LI	2	38' 0"		Int	233																	Qua	
HOK-1		4							2	LI	2			Int																		
McDonnell XH-20		2				Own Ram Jet	2		1			19' 6"												260	500	50						Tri	
XHJD-1						R-985-AN-MB	2	450-2300	2			48' 0"										15000											
.69C						Wri. C735	2																										
Piasecki HRP-2		10	100	91	8	P&W R-1340	1	600-2250	2	Tan	3	41' 0"		Tan		1320	N					7129	5295	1924	105+-SL	85+-SL		300+	950+	383+	11000	Tri	
HUP-1		7	100	100	7	Cont. 975-34	1	525-2300	2	Tan	3	35' 0"		Tan		950	N					9450	3924	1523	125-SL	103+-SL		420+	1230	950	12300	Tri	
HUP-2		6	150	100	7	Cont. R-975-42	1	560-2400	2	Tan	3	35' 0"		Tan			N					5750	4100	1650	109-SL	95		400	1030	650	10000*	Tri	
H-21A		16	300	‡		Wri. R-1820-103	1	1150-2600	2	Tan	3	44' 0"		Tan			N					11200	8400	2800	115+-5000	104+		570	1700	1000	16300	Tri	
H-21B		22	283	100		Wri. R-1820-103	1	1425-2700	2	Tan	3	44' 0"		Tan			N					13300	8906	4394	130-SL	91-5000		355	1600	600	10500	Tri	
H-16		47					2		2	Tan	3			Tan																		N	
Rotor Craft 3N	Navy	1	R			LFR	2	R	1	C	2	R	R		R	R	N					R	R	R	R	R	R	R	R	R	R	Tri	
XH-11		2				Lyco	1	125-2800	2	Tan	3	21' 6"	51.7	Tan	300	750	N					1650	1050	600	R	R	R	R	R	R	R	Tri	7' 11"
															390	680						1500	960	540	70-SL	65-SL	37	230	712	150	7000	Tri	7' 11"
Seibel S4A	SH2	2	19	80	5	Lyco	1	125-2600	1	....	2	23' 0"			405	680	2	8' 2"		1600		1650	1100	550	75-SL	70-SL		180	1300	450	14000	Skid	7' 5"
S4B		2	20	80	6	Frank 6A4-165-B3	1	165-2800	1	....	2	23' 0"																					
								*																									
Sikorsky S-51	H-2	4	100	80	8	P&W R-985-B4	1	450-2300	1	F	3	49' 0"			194	1886	2	3' 8"		1279	59.0	5530	3310	1690	103-(e)	85-(g)	198	235	1000	230	13500	Tri	12' 0"
S-52-2	H-3	3-4	60	80	3¼	Frank 6V6-245-B16F	1	245-3275	1	A	3	33' 0"			300	855	2	5' 4"		2205	22.4	2700	1825	875	110-SL	91-(f)	98	398	1100	300	12300	Qua	9' 0"
S-55		12	190	80	9¼	P&W R-1340	1	600-2250	1	F	3	53' 0"			194	2203	2	3' 3"		1360	66.8	6835	4550	2285	110-(f)	85-(g)	222	462	1050	300	15000	Qua	11' 0"

ABBREVIATIONS

*—Navy model—1769 lbs.
‡—100 to 130.
•—Navy model—731 lbs.

♦—Navy model—quadricycle.
†—Navy model—7' 8".
(a)—2 in. aft of station O.
(c)—0.28 in. aft of station O.
(e)—Sea level to 2300 ft.

(f)—Sea level to 6200 ft.
(g)—Sea level to 9500 ft.
A—Aft.
C—Center.
CA—Co-axial.

Cont—Continental Motors Corp.
F—Forward.
Frank—Franklin (Aircooled Motors).
Int—Intermeshing.
LI—Lateral intermeshing.

LFR—Liquid fuel rockets.
Lyco—Lycoming-Spencer Div.
N—No or none.
P&W—Pratt & Whitney Aircraft Div.
Qua—Quadracycle.

R—Restricted.
SL—Sea level.
Tan—Tandem.
Tri—Tricycle.
Wri—Wright.

For Directory of the Manufacturers listed above, see page 338

1952 U. S. AND FOREIGN CIVIL AIRCRAFT

MAKE AND MODEL	Type	A. T. C. Number	Number of Crew	Number of Seated Passengers	ENGINE: Make and Model	ENGINE: Number Used	ENGINE: Total Take-off HP. at Specified RPM	Fuel Capacity (Gal.)	Oil Capacity (Gal.)	DIMENSIONS (Ft. & In.): Span	Overall Length	Height (Taxi Position)	Wing Area (Gross) Sq. Ft.	Aileron Area (Sq. Ft.)	WEIGHTS (Lb.): Empty	Useful Load	Gross	Pay Load	PERFORMANCE: Maximum Speed at Altitude	Cruising Speed at Altitude	Range in Miles at Cruising Speed	Initial Climb (Ft. per/Min.)	Service Ceiling with Normal Load (Ft.)	Fuel Consumption at Cruising Speed (Lb. per Hr.)	PROPELLERS: Make	Type	Diameter (Ft. & In.)	Number of Blades
UNITED STATES																												
Aero Design ... 520		6A-1	1	4	Lyco ... GO-435-C2	2	520-3400	150	3	44' 7"		13' 0"	242.0	20.8	3200	1800	5000	1093	206 SL	197 10000	1150	2012	24000	150.0	H	CS	7' 6"	2
Anderson Greewood ... 14	P-L	4A1	1	1	Cont ... C-90-12FP	1	90-2475	23	1¼	34' 0"	22' 0"		120.0		850		1400	550	120* SL	110* SL	480	700*	19000		H	GA	6' 0"	2
Baumann ... B-290	ET-L	Pend.	1	4	Cont	2	290-2700	75	3½	41' 0"	10' 4"		213.0		2150	1250	3500	1000	185 6000	160 6000	750	1250	18000	84.0	S	Hy	6' 0"	2
Beech ... 50	PC-L		1	5	Lyco ... GO435C2	2	520-3400	135	3	45' 3"	31' 6"	11' 4"	277.0	13.7	3800	1700	5500		202 2500	190* 1000	1155	1500	19000	160.9	Own	CS	6' 0"	2
... B-35	P-L	777	1	3	Cont ... E-185-11	1	205-2600	39	2½	32' 10"	25' 2"	6' 8"	177.6	11.5	1625	1075	2700		190 SL	175 8000	775	1100	18000	57.2	Own	CS	7' 4"	2
... D-18S	P-L	A-765	1-2	8	P&W ... R985	2	900-2300	206	17	47' 7"	33' 11"	9' 2"	349.0	22.6	5770	2980	8750		230 5000	211 10000	905	1190	20500	278.0	HS	H-F	8' 3"	2
Bellanca ... 14-13-3	P-L	773	1	3	Frank ...	1	150-2600	40	3	34' 2"	21' 4"	6' 2"	161.5		1250	900	2150		170 SL	150 SL	725		22000		A	CS	6' 2"	2
... 14-19	P-L	1A3	1	3	Lyco ... O435A	1	190-2550	54½	3	34' 2"	23' 0"	6' 2"	161.5		1563	1037	2600		187 SL	180 6000	900	1400	22500		H	C	6' 6"	2
... 31-42	PC-LS	578	2	6	P&W ... R985	1	450-2300	200	12½	50' 6"	27' 11"	8' 6"	335.0		2954	2650	5604		170 SL	150 SL	1360	900	20000		HS	CS	9 0"	2
Boeing ... Stratocruiser	PC-L	812	5-7	80	P&W ... R-4360	4	14400-2700	7790	200	141' 3"	110' 4"	38' 3"	1769.0		83500	59000	142500	30000	375 25000	320 25000	3000	1100	33000		C-H	C-F-R	16' 6"	4
Cessna ... 170A	P-LS	799	1	3	Cont ... C145	1	145-2700	42	2	36' 0"	25' 0"	6' 7"	175.0	17.9	1200	1000	2200	780	140*	120*	450	690	15500	48.0	S	Fx	6' 1"	2
... 190	P-L	799	1	3-4	Cont ... W670-23	1	240-2200	80	5	38' 2"	27' 1"	7' 2"	218.0	12.3	2036	1320	3356	800	176 SL	160 7000	700*	1050	16000	86.0	HS	CS	7' 9"	2
... 195	P-LS	799	1	3-4	Jac ... R755-A2	1	300-2200	80	5	38' 2"	27' 4"	7' 2"	218.0	12.3	2050	1300	3350	780	180 SL	165 7000	700*	1200	18300	94.0	HS	CS	7' 9"	2
... 195A	P-LS	799	1	3-4	Jac ... R755-9	1	245-2200	80	5	38' 2"	27' 4"	7' 2"	218.0	12.3	2050	1300	3350	780	172 SL	157 7000	700*	940	13800	83.0	HS	CS	7' 9"	2
Convair ... 240	P-L	793	3-4	40	P&W ... R2800-CA-18	2	4800	1520	45	91' 9"	74' 8"	29' 11"	817.0	44.0	27682	14108	41790	9770	347 16000	272 16000	1840	1520	26200	1240.0	C-H	F-R	13' 1"	3
... 340	CT		3-4	44	P&W ... R2800-CB-16	2	4800-2800	1750	11½	105' 8"	79' 2"	27' 9"	920.0	43.8	29486	15514	45000	11632	320 14500	284 18000	3200	1340	27000	1250.0	HS	F-R	13' 6"	3
Douglas ... DC3-1189A	PC-L	6A-2	3	31	Wr ... R-1820-C9HE2	2	2950-2800	822	88	90' 0"	67' 8"	18' 3"	969.0	71.9	19537	11463	31000	7605	270 5900	239 10000	1400	1350	27000	840.0	HS	F	11' 6"	3
... DC6A-1135A	C-L	6A-3	3	N	P&W ... R2800-CB-17	4	10000-2800	5526	166	117' 6"	105' 7"	28' 8"	1463.0	85.1	51584	55416	107000	30010	368 19700	315 22400	4100	1000	26000	2545.0	HS	F-R	13' 6"	3
... DC6B-1198	PC-L	6A 4	5	52-66	P&W ... R2800-CB-16	4	9600-2800	4700	166	117' 6"	105' 7"	28' 8"	1463.0	85.1	54148	45852	100000	22300	360 18100	315 22400	3750	1040	23000	2545.0	HS	F-R	13' 6"	3
... DC6B-1225	PC-L	6A-4	7	52	P&W ... R2800-CB-17	4	10000-2800	5380	140	117' 6"	105' 7"	28' 8"	1463.0	85.1	56820	46180	103000	16190	368 19700	315 22400	4010	1080	26000	2545.0	HS	F-R	13' 6"	3
... DC6B-1225A	PC-L	6A-4	7	54	P&W ... R2800-CB-17	4	10000-2800	5484	166	117' 6"	105' 7"	28' 8"	1463.0	85.1	56340	48660	107000	16698	368 19700	315 22400	4070	1000	26000	2545.0	HS	F-R	13' 6"	3
Funk ... B85C	P-L		1	1	(f)	1	(g)	20	1¼	35' 0"	20' 1"		157 1	11.5	890	460	1350	460	112* SL	100* SL	400	800	15000	29.1	L	CS	6' 0"	2
Jamieson ... J-2-L1	P-L		1	2	Lyco ... O-235-C1	1	115-2800	29	1½	29' 0"	20' 10"	6' 2"	123 2	7.7	800	800	1600		160 3090	145 3000	700	1050	17000	35.6	S	C	6' 2"	2
Lockheed ... 1049-55	C-L		3		Wr ... 972TC18DA1	4	13000-2900	6570	260	123' 0"	113' 7"	23' 0"	1650.(	99.6	63000	67000	130000	38570	364 20000	305 20000	4300	1195	24100	3050.0	HS	H-F-R	15' 2"	3
... 1049C-55	P-L		11	63	Wr ... 972TC18DA1	4	13000-2900	6570	260	123' 0"	113' 7"	23' 0"	1650.(	99.6	69100	60900	130000	19400	364 20000	305 20000	4300	1195	24100	3050.0	HS	H-F-R	15' 2"	3
... 1049-53	P-L		11	65	Wr ... 956C18CA1	4	10800-2900	6570	229	123' 0"	113' 7"	23' 0"	1650.0	99.6	67850	52150	120000	17700	332 20000	312 20000	5250	1163	21500	2800.0	HS	H-F-R	15' 2"	3
Martin ... 4-0-4	P-L	1A-7	3	40	P&W ... R-2800-CB16	2	4800	1350	45	93' 3"	74' 7"	28' 5"	864.0	41.8	28126	14524	43650	11592	312 14500	280 18000	1625	1790	29000	1270.0	HS	H-F-R	13' 1"	3
Meyers ... 145	P	3A 1	1	2	Cont ... C145-2H	1	145-2700	32	2	30' 0"	21' 10"	6' 0"	154 0		1278	635	1910		166 SL	162 6000	690	962	18000	45.0	K	Fx	6' 2"	2
Mooney ... M-18L	P-L	803	1	0	Lyco ... O-145-B2	1	65-	12	1	26' 10"	17' 8"	6' 3"	95.0	6.6	520	260	780		138 SL	125 10000	440	1100	21000*	21.0	F-S	Fx	5 5"	2
... M-18C	P-L	803	1	0	Cont ... A65-8	1	65-	12	1	26' 10"	17' 8"	6' 3"	95.0	6.6	540	310	850		142 SL	130-10000	390	1100	21000*	21.0	F-S	Fx	5' 5"	2
Piper ... PA-18-95	P-L	1A2	1	1	Cont ... C90	1	90-2475	18	1¼	35' 4"	22' 4"	6' 8"	178.5	18.8	780	720	1500	430	112 SL	100-SL	390	960	16300	30.9	S	Fx	6' 2"	2
... PA-18-125	P-L	1A2	1	1	Lyco ... O290-D	1	125-2600	18	2	35' 4"	22' 4"	6' 8"	178.5	18.8	875	625	1500	332	120 SL	108 SL	260	1060	21100	46.2	S	Fx	6' 2"	2
... PA-20-125	P-LS	1A4	1	3	Lyco ... O290-D	1	125-2600	36	2	29' 4"	20' 5"	6' 2"	147.5	13.2	980	820	1800	420	135 SL	125 SL	580	810	14250	46.2	S	Fx	6' 2"	2
... PA-20-135	P-LS	1A4	1	3	Lyco ... O290-D	1	125-2600	36	2	29' 4"	20' 5"	6' 2"	147.5	13.2	1000	800	1800	400	140 SL	125 SL	600	810	14250	46.2	A	CS	6' 2"	2
... PA-22	P-L	1A6	1	3	Lyco ... O290-D	1	125-2600	36	2	29' 4"	20' 5"	6' 2"	147.5	13.2	1000	800	1800	400	135 SL	125 SL	580	810	14250	46.2	S	Fx	6' 2"	2
Ryan ... Navion-B	P-L	782	1	3	Lyco ... GO-435-C2	1	260-3400	59½	3	33' 4"	27' 6"	8' 8"	185.0	10.3	1930	920	2850		174 SL	170 6000	840	1250	18000	72.9	H	C	7' 9"	2
Texas Bullet ... 205					Cont ... E-185-1	1	205-2600	48	1¼	28' 0"	23' 1"	6' 6"	125.0	4.5	1350	950	2300		175		750	965	17450			C	6' 6"	

BRITISH

Airspeed	AS-57	P-L		5	47-48	Br	661	2	2600-																												4
Armstrong-Whitworth	Apollo	P-L		4	24-40	Ars	Mamba	4	5080-15000	1374	10	92' 0"	71' 5"	26' 0"	986.0	64.5	28950	16050	45000	7500	310	25000	276	25000	1200	1500	35000	1400.0	DH	C-R	10' 0"	4
Auster	Aiglet	P-L		1	2	DH	Gipsy Major Mk-1	1	130-2350	18	4	36' 0"	23' 8"	8' 5"	184.5	18.0	1215	765	2000		117	1000	100	1000	500	525	11000	46.8	DH	Fx	6' 4"	2
	Autocar	P-L		1	3	DH	Gipsy Major Mk-1	1	130-2350	38	4	36' 0"	23' 2"	8' 3"	184.5	18.0	1413	987	2400		117	1000	100	1000	500	525	11000	46.8	FR	Fx	6' 9"	2
	B-4	Am, Fr		1	3	Bla	702	1	180-2600	27†	3	37' 0"	24' 8"	8' 4½"	189.5	9.3	1842		2600	600	121	1000	105	1000	300	730			FR	Fx	7' 0"	2
	J-5-F	T, P		2	2	DH	Gipsy Major 1	1	130-2350	19	3½	32' 0"	22' 2"		189.5	7.9	1323		2200		132	1000	112	1000	270	1200	16000		FR	Fx	6' 9"	2
Blackburn, Universal Freighter		PC-L		4	90	Br	Hercules	4	7800-	3000		162' 0"	99' 2"	33' 0"	2916.0	168.0	63670	41330	105000	28800	225	3250	180	12500	2730	620	19400		R	C-F-R	14' 0"	4
Universal Freighter Mark II		PC		2-4	90	Br	Centaurus 171	4	2940-	3000		162' 0"	99' 0"	32' 6"	2916.0	168.0	73058	41500	127000		244	9000	225	6000	2500	800	18000		R	C-F-R	14' 0"	4
Bristol	Freighter & Wayfarer	PC-L		3	44	Br	Hercules	2	4000-2800	1400	240	108' 0"	68' 4"	21' 6"	1487.0	54.3	26665	15335	42000	14429	230	3000	166	5000	1660	1020	24500	765.0	R	C-F	14' 0"	4
	Brabazon Mk 2	P-L		6	100	Br	Proteus	8	(a)	18216	163	230' 0"	178' 10"	49' 7"	5422.0	996.0	170000	130000	300000										R	C-F-R	16' 0"	4
	Type 175	P-L			50-100*	Br	Proteus	4		8300		140' 0"	114' 0"	36' 8"	2055.0		71500	68500	140000	25000			380	3000	4000				N						
de Havilland	Comet	P-L		4	36-48		(c)	4		7220	11	115' 0"	93' 0"	29' 4"	2015.0				105000	14000			500	40000	2500										
	Heron	P-L		2	14-17	Own	Gipsy Queen 30	4	980-2500	360	16	71' 6"	45' 6"	14' 2"	487.0		7800	4800	12500	3420			160	8000	1250	1200	18500	274.0	Own	CS	7' 6"	2
	DHA-3	PC		1	6-12	Own	Gipsy Major 10	3	435-2500	90-130	9	57' 0"	33' 0"	9' 6"			4270	2230	6500	1400	140	5000	140	5000	560	835	14000	151.0	Own	C	8' 9"	2
	DHC-2	PC-LS		1	6	P&W	R-985-AN-6B	1	450-2300	95	6¼	48' 0"	30' 4"	9' 0"	250.0	24.6	2950	1870	4820	1050	171	SL	140	SL	630	1290	20000	116.0	HS	CS	8' 6"	2
	DHC-3	PC-LS		2	10	P&W	R-1340-AN-2	1	600-2250	238	12½	88' 0"	42' 0"	10' 6"	375.0	31.4	4200	3000	7200	2100	186	SL	122	SL	900	1190	18700	165.0	HS	CS	11' 0"	3
	DHC-3 (Canadian)	PC-LS		1	8-14	P&W	HR1340	1	600-			88' 0"	42' 0"	10' 6"	375.0		4000	3200	7200	2300	165		145		1100				HS						
Handley Page	Marathon I	P-L		2	16-20	DH	Gypsy Queen	4	1360-2800	336	29	65' 0"	52' 1"	14' 1"	498.0	30.2	12026	8672	18000	5380	232	6750	209	10000	1030	835	19300	300.0	DH	CS	7' 6"	3
Percival	Prince	PC-L		1-2	8-12	Av	Leonides	2	1100-	208	18	56' 0"		16' 1"	365.0		7918	3082	11000	2642	229	5000	190	10000	1180	1650	23400	254.8	DH	C-F-R	9' 0"	3
	Survey Prince	S-L				Av	Leonides	2	1100-	271	18	56' 0"		16' 1"	365.0		8400	2600	11000		229	5000	190	10000	1180	1650	23400	254.8	DH	CS	9' 0"	3
Saunders-Roe	Princess	P-S		8	100*	Br	Proteus	10	(d)	17400		219' 8"	148' 0"		5000.0				315000	40000			380	3600	5500				DH	CS	16' 6"	3
Scottish Aviation	Pioneer	PC-L		1	4	Av	Leonides	1	520-3000	72	5½	52' 9"	34' 7"	10' 1"	410.0	32.5	3909	1491	5400	850	162	4250	120	5000	427	1148	23000	115.0	D-R	CS	9' 0"	3
	Pioneer	PC-S		1	4	Av	Leonides	1	570-3000	72	5½	52' 6"	34' 7"	10' 1"	410.0	32.5	4256	1541	5800	898	153	2000	110	5000	426	1100	20000	108.0	DH	CS	9' 0"	3
	Pioneer	PC-L		1	4	P&W	Wasp Jr.	1	450-2300	72	5½	52' 6"	34' 7"	10' 1"	410.0	32.5	3782	1518	5300	876	151	3500	120	5000	416	935	18000	120.0	HS	CS	8' 6"	2
Short	Sealand SSI	P-LS		1	5-7	DH	Gypsy Queen	2	580-2800	115-173	7-14	61' 5"	42' 7"	14' 0"	358.6	19.1	7258	1841	9100	938	185	5000	150	8000	600	780	20800	144.0	DH	C-F	7' 6"	3
	SS3	PC-S		1	8-10	DH	Gypsy Queen	2	680-2900	115-173	9½	61' 5"	42' 2"	15' 6"	358.6	19.1	9440	2660	9100	1496	190	5000	127	8000	770	780	20800	144.0	DH	C-F	7' 6"	3
Vickers-Armstrong	VC2	CT		2-5						2065						71.8	32330	20170		12500	341	20000	310	25000	2080	1525	28500	1980.0						

BELGIAN

Fairey Tipsy	Junior	Land				Cont	A65	1	62-2800	12	1	23' 0"	18' 5"	4' 7"	112.0	14.8	454		771		109	SL	93	SL	320	787	16400	22.4	HR	Fx	5' 0"	2
	Belfair V	P-L		1	1	WM	II	1	62-2800	15	2½	31' 0"	21' 7"	8' 7"	129.0	13.5	570		1100		115	SL	100	SL	465	987	19600	22.4	FR	Fx	5' 0"	2

FRENCH

Breguet	763	PC-L		3	107-117	P&W	2800CA18	4	9600-	4043		141' 1"	95' 2"	33' 4"	606.3	33.9	58498		100000	16740	270	4725	145	9843	2361		22342	2206.0	HS	CS	13' 10"	3
S.N.C.A.N.	Nord 2501	PC-L		3	42	Br	Hercules 738	2	4080-2800	1345	73¾	108' 7"	71' 9"	20' 9"	1085.0	42.2	26850	16350	43200	11700	275	10000	210	10000	1560	1230	25000	770.0	R	CS	14' 0"	4
S.N.C.A.S.E.	2010	PC-L		7	94-107	P&W	R-4360-B-13	4	14000-	8273	407	160' 7"	130' 0"	43' 10"	774.3	31.2	105200	60174	165375	38567	338	14765	281	19686	3728				C-H	C-F-R	16' 2"	4
	LE-2410			1		His	None	2	10010†-			44' 7"	50' 8"	20' 3"	151.4														N						
	SE-3120*			1	2	Salm	9NH-200CV	1	203-2150														175		140		342	787	3773								3
S.N.C.A.S.O.	SO-30P	PC		3-4	43	P&W	R-2800-2SBG	2	4000-2700	1270	37½	88' 3"	62' 2"	16' 1"	924.0	55.7	30150	12000	42150	10380	291	15500	227	10000	1825	1150	23000	820.0	CE		13' 6"	4

ITALIAN

Aer Macchi	MB-308	P-LS		1	1	Cont	C-85 or C90	1	85or90-2575	19	1½	32' 6"	21' 6"	7' 2"	147.7	11.8	918		1433	518	115	3260	103	3280	456	550	14800	28.6	MA	Fx	6' 0"	2
	MB-320	PC-L		1	5	Cont	E-18507 225	2	205 or 225-2600	100	7¾	42' 6"	28' 4"	10' 4"	227.4	16.2	3265		4160	1675	200	SL	180	6500	1350	1120	17000	97.0	Mar	C-F	6' 8"	2
Fiat	G-212-CP	P-L		4	26-30	P&W	R-1830-SIC3-G	3	3600-2700	1185	60	96' 3"	75' 7"	21' 4"	1255.0	76.0	24700	15000	39700	5500	236	12000	200	10000	1700	985	24750	822.0	F-H	CS	11' 6"	3
Piaggio	P-138	PC-LS	RAI	1	4	Frank	848-218-B19F	2	430-2500	132	5½	44' 3"	38' 5"	11' 6"	280.0	17.8	3858	1544	5402	937	173	SL	137	8000	450	984	16404	135.0	Own	CS	7' 0"	2
	P-148	P-L	RAI	1	2	Lyco	O-435-A	1	190-2550	45	3	36' 5"	27' 7"	7' 10"	200.0	16.4	1950	875	2825		146	SL	124	6562	450	945	14436	98.5	Own	CS	7' 2½"	2
	P-148-MT	T-L	RAI	1	1	Lyco	O-435-A	1	190-2550	45	3	36' 5"	27' 7"	7' 10"	200.0	16.4	1931	715	2646		147	SL	127	3000	570	900	18045	98.5	Own	CS	7' 2½"	2

SPANISH

C.A.S.A.	201	P-L		3	10	Eliz	S-VII-A	2	880-2600	159-318		60' 4"	45' 4"	12' 11"	455.0	34.0	7950	4080	12100		187	SL	194	9300	625	890	18700	220.5	D-R	CS	8' 4"	3
	202	P-L		3	14	Eliz	E9-750	2	1530-2200			70' 10"	52' 6"	12' 5"	617.0	47.4	10580	5980	16900		203	SL	203	9300	875	1020	24800			CS	9' 7"	3

SWEDISH

SAAB	90A-2	P-L		2-3	24-32	P&W	R-2180E-1	2	3600-2900	770	55	91' 10"	69' 11"	23' 3"	922.0	69.4	21960	15150	35273	7700	260	8500	242	10000	1854	1350	26000	724.8	HS	CS	12' 2¾"	2
	91B	P-LS		1	2	Lyco	O-435-A	1	190-2550	46	3	34' 9"	26' 9"	7' 2"	146.0		1580	730	2310		171	SL	168	10000	880	1149	16000	63.3	H	V		4

ABBREVIATIONS

*—Plus.
†—lbs of thrust.
*—Helicopter.
(a)—25,200 h.p. and 6,400 lb thrust.
(c)—20,000 lb thrust at 10,250 r.p.m.
(d)—34,000 h.p. and 8,000 lb thrust.
(f)—Cont. C85-12 or Cont. C-90.
(g)—85 or 90 depending on engine used.
(h)—Comet 1, DH Ghost 50; Comet 2 RR Avon

A—Aeromatic
Am—Ambulance.
Ars—Armstrong-Siddely Motors, Ltd.
Av—Alvis, Ltd.
Bla—Blackburn & General Aircraft, Ltd.
Br—Bristol Aeroplane Co.
C—Controllable.
CE—Curtiss Electric.
C-F—Constant speed, full feathering.
C-F-R—Constant speed, full feathering, reversible.
C-H—Curtiss or Hamilton.
C-L—Cargo, land.
Cont—Continental Motors Corp.
C-R—Constant Speed, reversible.
CS—Constant speed.
CT—Commercial transport.
DH—DeHavilland Engine Co., Ltd.
D-R—DeHavilland or Rotol.
Eliz—Elizalde.
ET-L—Executive transport, land.
F—Full feathering.
F-H—Fiat or Hamilton.
Fr—Freight.
FR—Fairey-Reed.
F-R—Full feathering, reversible.
Frank—Franklin (Air Cooled Motors, Inc.)
F-S—Flottorp or Sensenich.
Fx—Fixed.
GA—Ground adjustable.
H—Hartzell.
H-F—Hydromatic, full feathering.
H-F-R—Hydromatic, full feathering, reversible.
His—Hispano.
HR—Howen-Richmond.
HS—Hamilton Standard.
Hy—Hydraulic controlled.
Jac—Jacobs Aircraft Engine Co.
K—Koppers controllable.
L—Lewis.
Lyco—Lycoming-Spencer Div.
MA—Macchi or Aeromatic.
Mar—Marchetti.
N—No or none.
P—Passenger.
PC—Passenger or cargo.
PC-L—Passenger or cargo, land.
PC-LS—Passenger or cargo, land or sea.
PC-S—Passenger or cargo, sea.
Pend—Pending.
P-L—Passenger, land.
P-LS—Passenger, land or sea.
P-S—Passenger, sea.
P&W—Pratt & Whitney Aircraft Div.
R—Rotol.
RAI—Registro Aeronautico Italiano.
S—Sensenich.
Salm—Salmson.
SL—Sea level.
S-L—Survey, land.
T—Trainer.
V—Variable.
WM—Walther Milnson.
Wr—Wright Aeronautical Corp.

For Directory of the Manufacturers listed above, see page 338

1952 U. S. AND BRITISH

Line Number	Make and Model	Engine Type: Turbo-jet or Prop.	Engine Type: Single or Coupled	Performance: Take-off: Thrust (Lb)	Take-off: Prop. Shaft (Hp)	Take-off: RPM	Take-off: Fuel Consumption	Normal: Thrust (Lb)	Normal: Prop. Shaft (Hp)	Normal: RPM	Normal: Fuel Consumption	Max. Cruising: Thrust (Lb)	Max. Cruising: Prop Shaft (Hp)	Max. Cruising: RPM	Max. Cruising: Fuel Consumption	Propeller Gearing Type	Compressor: Type	Compressor: No. of Stages	Compressor: Pressure Comp. Ratio	Compressor: Blade Root	Turbine: No. of Stages	Turbine: Blade Roots
	UNITED																					
1	Allison T38-A	TP	S		2763*	14300	0.58†									P	A	19	6.30	Do	4	Do
2	T40-A-6	TP	C		5525*	14300	0.60†									P	A	19	6.30	Do	4	Do
3	J33-A-35	TJ	S	5400	None	11750		3900	None	11250	1.14†	3800	None	11000		N	Ce	1	4.40	In	1	FT
4	J35-A-29	TJ	S	5600		8000	1.06	4900		7650	1.04					N	A	11	4.50	Do	1	FT
5	J35-A-33	TJ	S	5600		8000	1.07	4900		7650	1.07					N	A	11	4.50	Do	1	FT
6	J-71	TJ	S	7000*		R	R	R		R	R					N	A	16	R	Do	3	FT
7	Boeing 502	TP	S		210	36000			175		1.30‡					P	Ce	1	3.00	In	1	W
8	Cont'l Turbomeca Artouste I	P	S		280	35000	.97†		250	35000	1.02					SpG	Ce	1			2	
9	Artouste II	P	S		400	35000	.97†		325	35000	1.02					SpG	Ce	1			2	
10	Pimene TJ	S		220		35000	1.10†	176		35000	1.08						Ce	1			1	
11	Palas TJ	S		353		35000	1.22†	264		35000	1.13						Ce	1			1	
12	Marbore I TJ	S		662		22500	1.10†	528		21000	1.05						Ce	1			1	
13	Marbore II TJ	S		880		22500	1.09†	720		21000	1.07						Ce	1			1	
14	Aspin I DuF	S		528		35000	.61†	350		35000	.58						Ce	1			2	
15	Aspin II DuF	S		790		35000	.55†	660		35000	.52						Ce	1			2	
16	General Electric J47-C	TJ	S	5200*		7950		4730		7630	1.04	3700		7000	1.03		A	12	5.00	Do	1	FT
17	J47-17	TJ	S	5200*													A	12		Do	1	FT
18	J47-E	TJ	S	5800*													A	12		Do	1	FT
19	J-73	TJ															A					
20	J-83	TJ																				
21	Pratt & Whitney J-42	TJ	S	5000	N		1.12†	4000	N		1.09‡	2700	N		1.11‡	N	Ce	1	4.30		1	
22	J-48	TJ	S	6250	N		1.09†		N				N			N	Ce	1			1	
23	J-34	TP	S		5700*		.82†										A	13			3	
24	J-57	TJ	S	(Data Restricted)													A					
25	Westinghouse J-34-WE-22	TJ	S	3000	N			2290	N				N	12500	1.08‡	N	A	11			2	FT
26	J-34-WE-34	TJ	S	3250				2650														
27	J-34-WE-36	TJ																				
28	J-40-WE-6	TJ																				
29	Wright J-65	TJ	S	7220	N		.92‡		N							N	A					
	GREAT																					
30	Armstrong-Siddeley Adder	TJ	S	1050	N	15000	1.08‡	870	N	14250	1.02‡	1050		15000	1.08‡	N	A	10	5.00	FT	2	FT
31	Mamba	TP	S	300	1270	15000	.78†	250	1030	14500	.82†					P	A	10	5.00	FT	2	FT
32	Double Mamba	TP	C	780	2540	15000	.78†	660	2080	14500	.82†	880	2200	14500	.81†	P	A	10	5.00	FT	2	FT
33	Python	TP	S	1180	3870	8000	.80†	1050	2930	7800	.85†	1100	3230	7800	.82†	P	A	14	5.00	FT	2	FT
34	Sapphire	TJ	S	7220	N				N				N			N	A					
35	Viper	TJ	S		N			1575	N				N			N	A					
36	Bristol Theseus	TP	S	825	2200	8200	.87†										CA	2			3	
37	Proteus	TP	S	800	3200	10000	.63†										CA	2			3	
38	De Havilard Goblin 2	TJ	S	3100	N	10200	1.20‡	1900	N	8700	1.30‡	2630	N	9700	1.27‡	N	Ce	1		In	1	FT
39	Goblin 3	TJ	S	3350	N	10750	1.18‡	2220	N	9500	1.18‡	2850	N	10250	1.16‡	N	Ce	1	3.40	In	1	FT
40	Goblin 4, 35	TJ	S	3500	N	10750	1.16‡	2300	N	9500	1.16‡	3000	N	10250	1.14‡	N	Ce	1	3.40	In	1	FT
41	Ghost 50	TJ	S	5000	N	10250	1.08‡	3380	N	9000	1.02‡	4300	N	9750	1.05‡	N	Ce	1	4.50	In	1	FT
42	Napier Nomad	TP	C	320	3000										.36†		CA					
43	Rolls-Royce Derwent 5	TJ	S	3600	N	14700	1.05‡		N			3090	N	14100		N	Ce	1		In	1	
44	Nene 3	TJ	S	5000	N	12500	1.05‡	4860	N	12200		4090	N	11800		N	Ce	1	4.90	In	1	
45	Dart 504	TP	S	365	1400	14500	.83†					295	1120	13800			Ce	2		In	2	
46	Avon I	TJ	S	6500	N	7800									.86	N	A					

ABBREVIATIONS

‡—Lb/hr/lb thrust.
†—Lb/hp/hr.
*—Equivalent hp—thrust and propshaft.
▲—Booster pump.
**—Width—52.8, height—43.8.
■■—Integral with pumps.

‡—Alternator used.
▲—Each unit.
+—Plus •—Width.
(a)—Included in main pump.
(b)—Some J-47's have no emergency pumps.
(c)—Jack & Heintz model used on one model in this series.

A—Axial.
AK—Aviation Kerosene.
An—Annular
AR—Air Research.
Ben—Bendix.
C—Coupled.
CA—Centrifugal and axial.
Ce—Centrifugal.
Cn—Cannular.
Cy—Cylindrical.
DA—Double annular.
De—Diesel fuel.
DF—Direct flow.
Do—Dovetail.
Dow—Dowty.
Du F—Ducted fan.

For Directory of the Manufacturers listed above, see page 338

Value of Backlog of Orders, Net New Orders, and Net Sales of Complete Aircraft, Engines, and Propellers: Third Quarter, 1951

(All figures in millions of dollars)

Product	Backlog, June 30, 1951	Net New Orders During Quarter	Net Sales During Quarter	Backlog, September 30, 1951
TOTAL	$9,275	$2,091	$898	$10,468
Complete aircraft and parts	5,865	1,406	449	6,822
For United States military customers	5,212	1,243	388	6,067
Other	653	163	61	755
Aircraft engines and parts	2,514	419	259	2,674
For United States military customers	2,385	369	234	2,520
Other	129	50	25	154
Aircraft propellers and parts	228	36	28	236
For United States military customers	201	29	23	207
Other	27	7	5	29
Other products and services	668	230	162	736

AIRCRAFT GAS TURBINES

Arrangement	No. Used	Material	Air Intake	No. of Pumps	No. of Emergency Pumps	Fuel Controls	Afterburning	Recommended Octane Rating of Fuel	No. of Fuel Nozzles per Combustion Chamber	No. of Igniters	Type of Igniter	Sump Capacity (Pts)	Max. Oil Consumption (Pts/Hr)	Starter	Generator	Governor	Vacuum Pump	Fuel Pumps	Length (In.) With Extension Pipe	Length (In.) Without Extension Pipe	Max Diameter (In.)	Dry Weight With Component Parts (Lb)	Dry Weight Without Component Parts (Lb)	Line Number
STATES																								
Cy	8	R	DF				N		1	2	Sp			AR				Pos	149.0		40*	1540		1
Cy	16		DF		R		N			4	Sp	R		AR				Pos	185.0		49*	2575		2
Cy	14	SS	DF	1	(a)	M-H	N	100/130	1	2	Sp	24.0	2.0	GE	JH			Pos	107.0		90½	1795	1702	3
Cy	8	SS	DF	1	1	M	N	JP-4	1	2	Sp	Dry	3.0	G-D		Ben	None	Pos						4
Cy	8	SS	DF	1	1	M	Y	JP-4	1	2	Sp	Dry	3.0	G-D		Ben	None	Pos						5
Cn	10	SS	DF	2	0	M	Y	JP-4	1	2	Sp	R	R	G-D		Ben	None	Pos	172.0		37	R		6
Cy	2	SS	DF	1		M	N	De	1	2	SG		Ne	Var	Var				42.0		22.0	200		7
An	1		Ra	1			N	G, K, JP-3		2	Sp								23.0	31.7	16.0		181	8
An	1		Ra	1			N	G, K, JP-3		2	Sp								23.0	31.5	16.0		200	9
An	1		A	1			N	G, K, JP-3		2	Sp									43.1	16.1		119	10
An	1		A	1			N	G, K, JP-3		2	Sp									41.6	16.0		137	11
An	1		A	1			N	G, K, JP-3		2	Sp									54.5	22.3		264	12
An	1		A	1			N	G, K, JP-3		2	Sp									54.5	22.3		271	13
An	1		A	1			N	G, K, JP-3		2	Sp									47.7	22.9		304	14
An	1		A	1			N	G, K, JP-3		2	Sp									47.7	25.9		304	15
Cy		SS	DF	1	1(b)	M-H	N	JP-1, 3, 4	1	2			2.0	GE(c)	GE				144.0		38.8	2800		16
Cy		SS	DF	3	(a)	E	Y	JP-1, 3, 4	1	2				GE	GE				226.0		36.8	3000		17
Cy		SS	DF	1	1(b)	M-H	N	JP-1, 3, 4	1	2				GE	GE				144.0		39.5	2500		18
Cn								JP-1, 3, 4											144.0		39.5			19
																								20
Cy	9	Sta	DF	2	1‡	M	Y	73	2	2	Sp	18.5	1.5			Ben		Ben	103.2		49.5	1723		21
Cy	9																		106.7		50.0	2000		22
An																			135.0		30.0	2350		23
																								24
DA	1	SS	DF	1	1		N	AN-F-48	60	2	Sp	Dry		Own		Hol		Hol	120.0		24.0	1200		25
																						1233		26
																								27
																								28
			DF																133.8		37.3		2500	29
BRITAIN																								
Cy	6	NS	DF	1	N	Lu	N	AK	1	2	ASM	Dry	1.0	Rot	Rot	Lu	N	Lu	87.0	73.3	28.0		580	30
Cy	8	NS	DF	1	N	Lu	N	AK	1	2	ASM	Dry	2.0	Rot	N	Lu	N	Lu	80.0	57.8	31.0		760	31
Cy	12	NS	DF	1*1	N	Lu	N	AK	1	2	ASM	Sump	4.0	Rot	N	Lu	N	Lu	102.0	79.8	**		2050	32
Cy	11	NS	RF	1	N	ASM	N	AK	1	2	ASM		2.0	BTH	N	Rot	N	Lu	123.0	96.8	54.5	3150	3350	33
An			DF																134.0		35.2		2500	34
An			DF				N												82.7		23.2		365	35
Cy	8		DF				N													82.6	54.0	2205		36
Cy	8		DF				N													113.4	41.4	3200		37
Cy	16	NS	DF	1			N	DED 2482	1	2	Sp	10	2.0	Rot	Rot	**	Ple	Dow		100.5	49.9	1553		38
Cy	16	NS	DF	2	1		N	DED 2482	1	2	Sp	10	2.0	Rot	Rot	Own	Ple	Lu		100.5	49.9	1619		39
Cy	16	NS	DF	2	1		N	DED 2482	1	2	Sp	10	2.0	Rot	Rot	Own	Ple	Lu		100.5	49.9	1600		40
Cy	10	NS	DF	2	1		N	DED 2482	1	2	Gl	16	1.5	Rot	BTH‡	Own	Ple	Lu		115.5	53.0	2148		41
	3							AK, De											128.5			4200		42
Cy	9			1			N						1.0							83.1	43	1290		43
	9			2									1.0							98.9	45.5	1621		44
	7			1									1.0							95.1	38.5	1024		45
	8												1.5							119.0	42.4	2240			46

E—Integrated electronic.
FT—Fir tree.
G—Gasoline.
G-D—GE or Delco.
GE—General Electric.
Gl—Glow.
Hol—Holley Carburetor Co.
In—Integral.
JH—Jack & Heints.
K—Kerosene.
LU—Lucas.
M—Mechanical.
M-H—Mechanical and hydraulic.
N—No or none.
Ne—Negligible.
NS—Ninonic sheet.
P—Planetary.
Pes—Pesco.
Ple—Plessey.
R—Restricted data.
Ra—Radial.
RF—Reverse flow.
Rot—Rotax.
S—Single. SG—Spark & glow.
Sp—Spark.
SpG—Spur gearing.
SS—Stainless steel
Sta—Steel.
TJ—Turbo-jet.
TP—Turbo-prop
Var—Various.
W—Welded. Y—Yes.

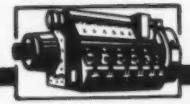
For Directory of the Manufacturers listed above, see page 338

Value of Backlog Reported by Manufacturers of Complete Aircraft, Engines, and Propellers: Second Quarter, 1950 — Third Quarter, 1951

(All figures in millions of dollars)

Product	Quarter Ending June 30, 1950	September 30, 1950	December 31, 1950	March 31, 1951	June 30, 1951	September 30, 1951
TOTAL	$2,988	$4,788	$5,039	$8,068	$9,275	$10,468
Complete aircraft and parts	1,908	2,950	3,102	5,289	5,865	6,822
For United States military customers	1,774	2,753	2,759	4,821	5,212	6,067
Other	134	197	343	468	653	755
Aircraft engines and parts	786	1,418	1,470	2,123	2,514	2,674
For United States military customers	757	1,373	1,399	2,017	2,385	2,520
Other	29	45	71	106	129	154
Aircraft propellers and parts	100	142	145	169	228	286
For United States military customers	96	135	129	150	201	207
Other	4	7	16	19	27	29
Other products and services	194	278	322	487	668	736

1952 U. S. AIRCRAFT ENGINES



RECIPROCATING TYPE

ENGINE MAKE AND MODEL	A. T. C. Number	GENERAL DATA: Arrangement	Cooling Medium	Number of Cylinders	Bore and Stroke (In.)	Total Piston Displacement (Cu. In.)	Compression Ratio (to —1)	B.M.E.P. at Maximum Hp. (Lb. per Sq. In.)	Blower Ratio	Cylinder Material	No. of Valves per Cylinder: Intake	Exhaust	Valve Arrangement	RATINGS: Maximum (Except Take-off): Horsepower	R.P.M.	At Sea Level or Altitude (Ft.)	Take-off: Horsepower	R.P.M.	Cruising: Horsepower	R.P.M.	Octane Rating of Fuel Required	Propeller Drive Ratio (to —1)	Weight (Lb.): Engine Dry—Without Hdb or Starter	Per Maximum Hp. (Except Take-off)	Carburetor: Number Used and Make	Type	Ignition System—Make	Starting: Make	Method	Installation Dimensions (Overall—Ins.): Length	Height or O. D.	Width	Height above Engine Bed	Diameter Mounting Ring or Distance Between Mounts
Continental A65-8	205	Hor	Air	4	3 7/16x3 5/8	171.0	6.30	131	No	(5)	1	1	In	65	2300	SL	65	2300	55	2150	73	D	176	2.70	1-Str	FL	Eis	N		31.00	23.30	31.50		
C75-12	233	Hor	Air	4	4 1/16x3 5/8	188.0	6.30	139	No	(5)	1	1	In	75	2275	SL	75	2275	58	2275	73	D	176	2.14	1-Str	FL	Scin	N		31.00	24.20	31.50		
C85-12	233	Hor	Air	4	4 1/16x3 5/8	188.0	6.30	139	No	(5)	1	1	In	85	2575	SL	85	2575	61	2300	73	D	184	2.07	1-Str	FL	Scin	DR	EM	32.00	24.20	31.60		
C85-8F	233	Hor	Air	4	4 1/16x3 5/8	188.0	6.30	139	No	(5)	1	1	In	85	2575	SL	85	2575	61	2300	73	D	184	2.07	1-Str	FL	Scin	DR	EM	31.00	24.20	31.50		
C90-8F	252	Hor	Air	4	4 1/16x3 7/8	200.9	7.00	143	No	(5)	1	1	In	90	2475	SL	90	2455	64	2200	80	D	184	2.07	1-Str	FL	Scin	DR	EM	31.00	24.20	31.50		
C90-12F	252	Hor	Air	4	4 1/16x3 7/8	200.9	7.00	143	No	(5)	1	1	In	90	2475	SL	95	2655	64	2200	80/87	D	188	2.06	1-Str	FL	Scin	DR	EM	32.00	24.20	31.60		
C125-2	238	Hor	Air	6	4 1/16x3 7/8	282.0	6.30	138	No	(5)	1	1	In	125	2550	SL	125	2550	90	2400	73	D	257	2.05	1-MS	FL	Scin	DR	EM	41.00	24.70	31.60		
C125-2	238	Hor	Air	6	4 1/16x3 7/8	282.0	6.30	138	No	(5)	1	1	In	145	2700	SL	145	2700	109	2450	80/87	D	265	1.82	1-MS	FL	Scin	DR	EM	41.00	24.70	31.60		
C145-2	253	Hor	Air	6	4 1/16x3 7/8	301.3	7.00	141	No	(5)	1	1	In	185	2300	SL	205	2600	135	2070	80/87	D	355	1.92	1-Str	PI	Scin	DR	EM	46.66	22.30	33.41		
E185	246	Hor	Air	6	5x4	471.0	7.00	135	No	(5)	1	1	In	225	2650	SL	225	2650	175	2400	80/86	D	387	1.90	1-Str	PI	Scin	Ecl	EM	46.66	22.30	33.41		
E225-8	287	Hor	Air	6	5x4	471.0	7.00	143	No	(5)	1	1	In	240	2650	SL	240	2650			80	D	399	2.10	1-Str	PI	Scin	Ecl	EM	45.20	30.10	33.41		
O-470-11		Hor	Air	6	5x4	471.0	7.00	140	No	(5)	1	1	In	190	2300	SL	213	2600					519	2.12	1-Str	FL	Scin			35.56	42.25	42.50		
W670-23	162	Rad	Air	7	5 1/4x4 5/8	667.8	6.10	130	No	(5)	1	1	In	240	2200	SL	240	2200	175	2000	80/87	D	263	1.74	1-MS	FL	Scin	DR	EM	28.13	23.63	33.39		
O-315-A		Hor	Air	4	5x4	315.0	7.00	145	No	(5)	1	1	In	150	2600	SL	150	2600	115	2400	80/86	D	263	1.74	1-Str	FL	Scin	DR	EM	28.13	23.63	33.39		
GE280-2		Hor	Air	6	5x4	471.0	7.00	141	No	(5)	1	1	In	260	3100	SL	260	3100	195	2700	80/86	.690	436	1.67	1-Str	PI	Scin	Ecl	EM	50.40	22.30	33.41		
O-470-A		Hor	Air	6	5x4	471.0	7.00	145	No	(5)	1	1	In	225	2600	SL	225	2600	175	2400	80/86	D	352	1.56	1-MS	FL	Scin	DR	EM	41.94	22.78	33.39		
*O-470-5		Hor	Air	6	5x4	471.0	7.00	148	2.00	(5)	1	1	In	250	3200	13500	285	3200	250	3200	91/96	D	470	1.88	1-Ben	PI	Ben	Ben	EM	38.56	33.75	34.88		
R-975	34	Rad	Air	9	5x5 1/2	973.0	6.30	186	10.15	(5)	1	1	In	500	2500	6700	525	2300	500	2500	100/130	D	725	1.45	1-Ben	PI	Ben	Sev	EM	42.44	45.50			
Franklin 4A4-75-B3	239	Hor	Air	4	4 1/2x3 1/2	225.0	7.00	135	No	(6)	1	1	In	75	1950	SL			51	1775	80	D	214	2.86	1-MS	FL	Eis	AL	EM	30.66	20.90	30.81	12 1/2	
4A4-85-B3	239	Hor	Air	4	4 1/2x3 1/2	225.0	7.00	136	No	(6)	1	1	In	85	2200	SL			64	2000	80	D	214	2.51	1-MS	FL	Eis	AL	EM	30.66	20.90	30.81	12 1/2	
4A4-100-B3	239	Hor	Air	4	4 1/2x3 1/2	225.0	7.00	138	No	(6)	1	1	In	100	2600	SL			75	2370	80	D	214	2.14	1-MS	FL	Eis	AL	EM	30.66	20.90	30.81	12 1/2	
4A4-145-A3	238	Hor	Air	6	4 1/2x3 1/2	335.0	7.00	138	No	(6)	1	1	In	145	2600	SL			109	2370	73	D	291	2.00	1-MS	FL	Eis	DR	EM	37.37	22.56	30.81	13 1/2	
4A4-150-B3	238	Hor	Air	6	4 1/2x3 1/2	335.0	7.00	136	No	(6)	1	1	In	150	2600	SL			113	2370	80	D	291	1.94	1-MS	FL	Eis	DR	EM	37.37	22.56	30.81	13 1/2	
4A4-150-B3	238	Hor	Air	6	4 1/2x3 1/2	335.0	7.00	136	No	(6)	1	1	In	150	2600	SL					80	D	294	1.95	1-MS	FL	Scin	DR	EM	36.00	26.81	30.81		
6V4-175-B3	244	Ver	Air	6	4 1/2x3 1/2	335.0	7.00	140	No	(6)	1	1	In	178	3000	SL					80	D	329	2.05	1-Str	FL	Scin	DR	EM	40.62	29.81	30.81		
6V4-165-B3F	244	Ver	Air(a)	6	4 1/2x3 1/2	335.0	7.00	130	No	(6)	1	1	In	165	3000	SL			124	2550	80	D	307	1.86	1-MS	PI	Scin	DR	EM	37.37	25.31	30.81	13 1/2	
6A4-165-B3	238	Hor	Air	6	4 1/2x3 1/2	335.0	7.00	139	No	(6)	1	1	In	165	2600	SL					91	D	306	1.53	1-BM	P-FL	Scin	DR	EM	26.81	36.00	30.81		
6V4-200-C32	244	Ver	Air	6	4 1/2x3 1/2	335.0	8.50	152	No	(6)	1	1	In	200	3100	SL					80	.632	324	1.11	1-BM	P-FL	Scin	DR	EM	40.59	26.12	30.81		
6AG4-185-B13	238	Hor	Air	6	4 1/2x3 1/2	335.0	7.60	141	No	(6)	1	1	In	190	3100	SL					80	D	353	1.44	1-Str	PI	Eis	Opt	EM	33.62	39.93	33.28		
6V6-245-B16F	258	Ver	Air(a)	6	4 5/8x4	425.0	7.50	139	No	(6)	1	1	In	245	3275	SL	245	3275	184	3275	80	D	353	1.44	1-Str	PI	Scin	Opt	EM	33.62	39.93	33.31		
6AG6-245-B		Hor	Air	6	4 5/8x4	425.0	7.40	138	No	(6)	1	1	In	240	3200	SL	245	3300	180	2900	80	.623	405	1.69	1-Str	PI	Scin	Opt	EM	47.06	35.09	33.31		
Jacobs R-755A	237	Rad	Air	7	5 1/4x5	757.0	6.00	143	No	(5)	1	1	In	300	2200	SL	300	2200	178	1800	80	D	505	1.69	1-Str	FL	Scin	Ecl	EM	39.50	44.00			16.50
R-755B	Pend	Rad	Air	7	5 1/4x5	757.0	6.00	131	No	(5)	1	1	In	275	2200	SL	275	2200	160	1900	80	D	480	1.72	1-Str	FL	Scin	Ecl	EM	39.50	44.00			16.5C
R-755E	237	Rad	Air	7	5 1/4x5	757.0	6.50	146	No	(5)	1	1	In	350	2500	SL	350	2500	200	2000	91	.649	600	1.71	1-Str	FL	Scin	Ecl	EM	39.50	44.00			16.50
R-755-9	121	Rad	Air	7	5 1/4x5	757.0	5.40	117	No	(5)	1	1	In	225	2000	SL	245	2200	160	1900	80	D	471	2.09	1-Str	FL	Scin	Ecl	EM	39.50	44.00			16.50
Kinner R-56	153	Rad	Air	5	5x5 1/2	540.0	6.90	127	No	(5)	1	1	In	160	1850	SL	160	1850	115	1650	73	D	382	2.26	1-SH	FL	Scin	Ecl	Opt	33.60	45.59			14
Lycoming O-145-B2	210	Hor	Air	4	3 7/8x3 1/2	144.5	6.50	140	No	(1)	1	1	In	65	2550	SL	65	2550	49	2310	80	D	163	2.50	1-MS	FL	Scin		PS	24.62	20.59	29.56		(a)
O-235-C1	223	Hor	Air	4	4 1/8x3 7/8	233.3	6.75	141	No	(5)	1	1	In	108	2600	SL	115	2600	81	2360	80	D	225	1.80	1-MS	FL	Scin	DR	EM	29.56	22.81	32.32		(t)
O-290D	229	Hor	Air	4	4 7/16x3 7/8	289.0	6.50	132		(5)	1	1	In	125	2600	SL	130	2800	94	2350	80	D	364	1.91	1-MS	FL	Scin	DR	EM	38.10	29.61	32.24		(u)
O-435-A	228	Hor	Air	6	4 7/16x3 5/8	434.0	6.50	136	No	(5)	1	1	In	190	2550	SL	190	2550	143	2310	80	D	363	1.61	1-MS	FL	Scin	DR	EM	38.10	29.59	32.21		(u)
O-435-A2	228	Hor	Air	6	4 7/16x3 5/8	434.0	7.50	137		(5)	1	1	In	225	3000	SL	260	3400	180	2750	80/87	.640	432	1.80	1-MS	FL	Scin	DR	EM	47.71	29.59	33.12		(u)
GO-435-A2	228	Hor	Air	6	4 7/16x3 5/8	434.0	7.50	146		(5)	1	1	In	240	3000	SL	260	3400	180	2750	80/87	.640	432	1.80	1-Str	PI	Scin	Opt		39.57	29.59	33.12		(u)
GO-435-C2	228	Hor	Air	6	4 7/16x3 5/8	434.0	7.50	146		(5)	1	1	In	240	3000	SL	260	3400	180	2750	80/87	.640	432	1.80	1-Str	PI	Scin	Opt	EM	57.80	19.97	33.18		
GSO-580	256	Hor	Air	8	4 7/16x3 7/8	578.0	7.50	146	7.91	(5)	1	1	In	320	3000	SL	375	3000	240	3730	91/96	.640	635	1.98	1-Str	PI	Scin	Opt		57.98	19.97	33.18		
GSO-580-B	256	Hor	Air	8	4 7/16x3 7/8	578.0	7.30	160	7.91	(5)	1	1	In	350	3000	SL	400	3300	260	2750	100/130	.640	624	1.79	1-Str	PI	Scin	Opt		57.98	19.97	33.18		
R-680-E3A	202	Rad	Air	9	4 5/8x4 1/2	680.4	7.00	151	1.00	(5)	1	1	In	285	2200	SL	300	2300	222	2000	91/96	.640	515	1.80	1-Str	FL	Scin	Ecl	EM	37.50	13.50		19.25	
Pratt & Whitney Aircraft Wasp Jr-B4	123	Rad	Air	9	5 1/4x5 1/2	985.0	6.00	157	10.00	(5)	1	1	In	450	2300	2300	450	2300	300	2000	80/87	D	684	1.52	1-Str	FL	Scin	Opt	EM	47.69	46.10			23.37
Wasp Jr-B5	123	Rad	Air	9	5 1/4x5 1/2	985.0	6.00	157	10.00	(5)	1	1	In	450	2300	2300	450	2300	300	2000	80/87	D	682	1.51	1-Str	FL	Scin	Opt	EM	42.43	46.10			23.37
Wasp S1H1	129	Rad	Air	9	5 5/8x5 5/8	1344.0	6.03	157	12.00	(5)	1	1	In	550	2200	8000	600	2250	400	2000	80/87	D	865	1.57	1-Str	FL	Scin	Opt	EM	43.01	51.80			23.37
Wasp S3H1	143	Rad	Air	9	5 5/8x5 5/8	1344.0	6.03	157	10.00	(5)	1	1	In	550	2200	5000	600	2250	400	2000	80/87	D	865	1.57	1-Str	FL	Scin	Opt	EM	43.01	51.80			23.37
Wasp S3H2		Rad	Air	9	5 5/8x5 5/8	1344.0	6.03	157	10.00	(5)	1	1	In	550	2200	5000	600	2250	400	2000	80/87	D	865	1.57	1-Str	FL	Scin	Opt	EM	47.70	51.80			23.37

	Twin Wasp S1C3-G	186	Rad	Air	14-5¼x3½	1830.0	6.70	192	7.15	(5)	1	1	In	1650	2550	7500	1200	2700	700	2250	91/98	.562	1467	1.40	1-Str	PI	Scin	Opt	EM	61.16	48.19			27.00
	Twin Wasp D-S	230	Rad	Air	14-5¾x3½	2004.0	6.50	212	7.15	(5)	1	1	In	1200	2550	6400	1450	2700			100/130	.500	1585	1.31	1-Str	PI	Scin	Opt	EM	59.66	48.10			27.00
	Twin Wasp 25D13-G	230	Rad	Air	14-5¾x5½	2004.0	6.50	212	7.15	(5)	1	1	In	1200	2550	8000	1450	2700			100/130	.500	1595	1.33	1-Str	PI	Scin	Opt	EM	59.66	48.10			27.00
					(With Impeller in High Gear Ratio)				9.52					1100	2550	1400																			
	*Double Wasp CA3	231	Rad	Air	18-5¾x6	2804.0	6.75	212	7.29	(5)	1	1	In	1800	2600	6000	†2100	2800			100/130	.480	2317	1.29	1-Str	PI	Scin	Opt	EM	78.40	52.80			33.75
	*Double Wasp CA15	231	Rad	Air	18-5¾x6	2804.0	6.75	242	7.29	(5)	1	1	In	1800	2800	6000	†2100	2800			100/130	.480	2350	1.47	1-Str	PI	Scin	Opt	EM	78.40	52.80			33.75
					(With Impeller in High Gear Ratio)				9.45					1800	2600	16000																			
	*Double Wasp CA16	231	Rad	Air	18-5¾x6	2804.0	6.75	242	7.29	(5)	1	1	In	1800	2600	6000	†2100	2800			100/130	.450	2350	1.30	1-Str	PI	Scin	Opt	EM	78.40	52.80			33.75
					(With Impeller in High Gear Ratio)				9.10					1800	2600	14800																			
	*Double Wasp CB3	264	Rad	Air	18-5¾x6	2804.0	6.75	195	7.29	(5)	1	1	In	1800	2600	8500	2050	2700			100/130	.480	2357	1.31	1-Str	PI	Scin		EM	81.40	52.80			
	*Double Wasp CB4		Rad	Air	18-5¾x6	2804.0	6.75	208	7.29	(5)	1	1	In	1900	2600	7000	2200	2800			108/135	.450	2357	1.24	1-Str	PI	Scin		EM	81.40	52.80			
	*Double Wasp CB16	264	Rad	Air	18-5¾x6	2804.0	6.75	242	7.29	(5)	1	1	In	1800	2600	8500	†2050	2700			100/130	.450	2390	1.33	1-Str	PI	Scin	Opt	EM	81.40	52.80			33.75
					(With Impeller in High Gear Ratio)			208	9.40					1700	2600	14500																			
	*Double Wasp CB17		Rad	Air	18-5¾x6	2804.0	6.75	208	7.29	(5)	1	1	In	1900	2600	7000	2200	2800			108/135	.450	2390	1.26	1-Str	PI	Scin		EM	81.40	52.80			
					(With Impeller in High Gear Ratio)				9.10					1750	2600	13500																			
	*Wasp Major CB2		Rad	Air	28-5¾x6	4363.0	6.70	200	6.37	(5)	1	1	In	2800	2550	3500	3250	2700			108/135	.375	3670	1.31	1-Str	PI	Scin		EM	96.50	55.00			
Wright	Cyclone 749C18BD		Rad	Air	18-6¼x6⅞	3347.0	6.50	207	6.46	(5)	1	1	In	2100	2400	5500	2500	2800	1470	2300	100/130	.4375	2884	1.37	1-Ben	PI	Scin	Opt	EM	78.47	55.62			40.75
			(2-Speed Blower Engine)						8.67					1800	2400	16000	1900	2600	1400	2300														
	Cyclone 957C7BA1		Rad	Air	7-6¼x6⅞	1300.0	6.20	178	7.21	(5)	1	1	In	700	2400	9000	800	2600	490	2200	91/98	.6525	1015	1.04	1-Str	PI	Boe	Opt	EM	48.12		50.45		28.00
	Cyclone 959C9HE1		Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	(5)	1	1	In	1275	2500	3500	1525	2600	880	2300	122/145	.4375	1398	1.09	1-Str	PI	Boe	Opt	EM	48.50		54.95		30.25
			(2-Speed Blower Engine)						8.69					1125	2500	10800	1250	2700	785	2300														
	Cyclone 958C9HE1		Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	(5)	1	1	In	1275	2500	3500	1525	2600	880	2300	100/130	.4375	1413	1.10	1-Str	PI	Boe	Opt	EM	48.50		54.95		30.25
			(2-Speed Blower Engine)						8.69					1125	2500	10800	1250	2700	785	2300														
	Cyclone 956C18CA		Rad	Air	18-6¼x6⅞	3347.0	6.50	210	6.46	(5)	1	1	In	2300	2600	6300	2700	2900	1600	2300	115/145	.4375	2957	1.23	1-Str	IM	Boe	Opt	EM	78.54		55.62		
			(2-Speed Blower Engine)						8.67					1900	2600	15800			1800	2400														
	Turbo Compound R3350-30W		Rad	Air	18-6¼x6⅞	3347.0				(5)	1	1	In				3200	2900																
	Cyclone 968C9HE1	299	Rad	Air	9-6¼x6⅞	1823.0	6.80		7.21	(5)	1	1	In	1275	2500	3800	1475	2800	880	2400	100/130	.5625	1390	1.09	1-Str	PI	Boe	Opt	EM	48.50	54.95			30.25
	Cyclone 975C18CB1		Rad	Air	18-6¼x6⅞	3347.0	6.70		6.46	(5)	1	1	In	2400	2600	4800	2800	2900	1600	2400	115/145	.4375	3029	1.26	1-Str	FL	Scin	Opt	EM	78.54	56.50			
			(2-Speed Blower Engine)						8.67					2000	2600	15700			1500	2400														
	Turbo Compound 972TC18DA1		Rad	Air	18-6¼x6⅞	3347.0				(5)	1	1	In				3250																	
			(2-Speed Blower Engine)																															

ABBREVIATIONS

*—Equipped for water injection.
†—Power rating without water injection.
▲—Helicopter engine with vertical crankshaft.
(1)—Nickel iron with aluminum head.
(S)—Steel with aluminum head.
(S)—Aluminum with cast iron sleeves.
(a)—Cooled by fan.
(e)—A longitudinal type mounting is provided by four mounting bosses integral with crankcase.
(t)—A rear type mounting is provided by four mounting bosses integral with crankcase.
(u)—A rear type mounting is provided by five mounting bosses, four of which are integral with the crankcase sections and the remaining boss is located at the rear of the oil sump.
AL—Electric Auto-Lite Co.
Ben—Bendix Aviation Corp.
Boe—American Bosch Corp.
BM—Bendix or Marvel-Schebler.
D—Direct.
DR—Delco-Remy Div.
Ecl—Eclipse-Pioneer Div.
Eis—Eiseman Corp.
EM—Electric motor. FL—Float.
Hor—Horizontally opposed.
IM—Impeller injection.
In—In head with push rods and rocker arms.
MS—Marvel-Schebler Carburetor Div.
N—No or none. Opt—Optional.
P-FL—Pressure or float injection.
Pend—Pending.
PI—Pressure injection.
PS—Propeller swing.
Rad—Radial.
Scin—Scintilla Magneto Div.
Sev—Several.
SH—Stromberg or Holley.
SL—Sea level.
Str—Stromberg-Elmira Div.
Ver—Vertically opposed.

For Directory of the Manufacturers listed above, see page 338

Helicopter Model Designations

Prepared by Helicopter Council, Aircraft Industries Association

Make	Commercial Designation	No. of Places	Engine Make	Engine Hp.	Military Designations U.S.A.F.	U.S.A.	U.S.C.G.	U.S.M.C.	U.S.N.
Bell	47	2	Franklin	178	YH13	YH13	HTL-1	HTL-1	HTL-1
	47B	2	Franklin	178	H13-B	H13-B	HTL-2	HTL-2	HTL-2
	47D	2	Franklin	200	H13-C	H13-C	HTL-3	HTL-3	HTL-3
	47D-1	3	Franklin	200	H13-D	H13-D	HTL-4	HTL-4	HTL-4
	47D-1	3	Franklin	200	H13-E	H13-E	HTL-5	HTL-5	HTL-5
	48	10	P&W	600	YH-12	.....	.....	.....	.....
	61	3	P&W	1900	.....	.....	.....	.....	XHSL
Doman	LZ-4	6	Lycoming	400	.....	.....	.....	.....	.....
	LZ-5	2-6	Lycoming	400	.....	.....	.....	.....	.....
Hiller	UH12	3	Franklin	178	.....	H23A	.....	.....	HTE-1
	UH12A	3	Franklin	200	.....	H23B	.....	.....	HTE-2
Hughes			Classified		XH-17	.....	.....	.....	.....
Kaman	K-240	3	Lycoming	245	.....	.....	.....	HTK-1	HTK-1
	K-3	4	Continental	525	.....	.....	.....	HOK-1	HOK-1

* Each.

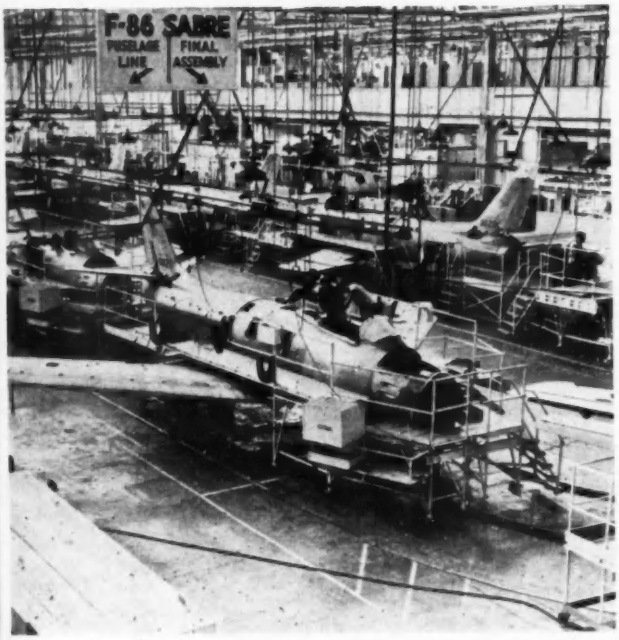
Make	Commercial Designation	No. of Places	Engine Make	Engine Hp.	Military Designations U.S.A.F.	U.S.A.	U.S.C.G.	U.S.M.C.	U.S.N.
McDonnell	36	1	McDonnell	Jet	XH-20	.....	.....	.....	.....
	79	1-2	McDonnell	Jet	.....	.....	.....	.....	.....
Piasecki	.....	10	P&W	600	.....	.....	.....	HRP-1	HRP-1	HRP-1
	.....	10	P&W	600	.....	.....	.....	.....	HRP-2	HRP-2
[illegible]	.....	6	Continental	525	.....	.....	.....	.....	.....	HUP-1
	.....	6	Continental	560	.....	.....	.....	.....	.....	HUP-2
	.....	6	Continental	560	.....	H-25A	.....	.....	.....
[illegible]	.....	10	Wright	1150	YH-21	.....	.....	.....	.....
	.....	10	Wright	1150	H-21A	.....	.....	.....	.....
	.....	22	Wright	1425	H-21B	.....	.....	.....	.....
	.....	42	2 P&W	1650*	XH-16	.....	.....	.....	.....
Sikorsky	S-51	4	P&W	450	H-5	.....	HO3S	HO3S	HO3S
	S-52-2	3-4	Franklin	245	.....	YH-18	HO5S	HO5S	.....
	S-55	10-12	P&W	600	H-19	H-19	HO4S	HRS	HO4S
	S-56	.....	Classified	.....	.....	.....	.....	HR2S	.....

PROBLEMS

By Robert McLarren

that Harass the

Aircraft Industry



THE aircraft manufacturing industry is struggling with far more problems today than ever in its history. It is expanding its production rate against ever-increasing difficulties with equipment and supplies deliveries, manpower and facilities. It has monumental headaches both within and without —all due to the persistent failure of the Government to provide realistic and longe-range procurement planning. It is probably the most problem-racked industry in the U. S. at the moment.

However, the final measure of the industry —its monthly production deliveries—shows a consistent, if erratic, increase as the months pass and it stands today at a volume more than three times that at the outbreak of hostilities in Korea. This improvement should reach a value of five times by the middle of next year, or a five-fold increase in three years (instead of the one year predicted by President Truman 18 months ago).

It has become virtually impossible to obtain a detail measure of the performance of the industry due to security policies. No data may be released on production figures, dollar volumes, engine horsepower or airframe weight for military aircraft or engines and since military production comprises more than 90 per cent of the output of the industry it is impossible to gage its performance. While this may seem a logical military policy, its inconsistency lies in the fact that complete details are not only available but rigorously publicized by the Air Force on the over-all size of the program. Every citizen of every nation on earth has been exposed to the fact that the Air Force now has 90 combat wings and is building towards a goal of 143 wings, the Navy now has 14 carrier air groups and is building towards a goal of 16. The numerical composition of these forces is unclassified information so that Russia et al have a blueprint of what

CIVIL AIRCRAFT AND ENGINE INCOME—1951

Transport aircraft	$ 71,276,000
Personal aircraft	16,119,000
Aircraft parts	47,598,000
Other aircraft products	47,886,000
Aircraft engines	26,448,000
Other engine products	7,320,000
Total	$216,647,000

we are trying to do, how much money we are spending to do it, when it is scheduled for attainment and the precise effect of it on our national economy. All of these are, in our opinion, the most strategic items of intelligence to be desired by a potential enemy. We are left, therefore, with only civil aircraft and engine outputs as a detailed measure of the industry.

During World War II the outstanding performance of the aircraft manufacturing industries was accomplished with the aid of virtually unlimited funds, the maximum level of priorities, and a patriotic fervor created by a desire to win the war. Today these are lacking yet the same pressure for expansion is being applied. The industry knows full well that this creates an impossible situation in which only the best can be done each day with the materials on hand that day—nothing more. While backlog figures used to indicate roughly the general level of activity of a company, it now stands as a monument to production frustrations and long delays in expansion. There are now three companies (Boeing, Lockeed and United Aircraft) with individual backlogs of more than one billion dollars and the total industry backlog is now approaching $20 billion, or about one-quarter of the entire national defense program.

MILITARY AIRCRAFT PROCUREMENT

U. S. Air Force:	1952 Fiscal Year	1953 Fiscal Year
Aircraft	$11,203,295,623	$10,696,234,000
Guided Missiles	130,887,287	300,000,000
Research and Development	485,317,262	525,000,000
Industrial Mobilization	13,429,274	3,766,000
	$11,832,929,446	$11,525,000,000
Naval Aviation:		
Aircraft	$ 3,812,081,507	$ 3,284,880,000
Guided Missiles	33,852,000	152,800,000
Modernization	29,203,000	18,368,000
	$ 3,875,136,507	$ 3,456,048,000
Army Aviation:		
Aircraft	$ 60,786,073	$ 36,107,000
Grand Total	$15,768,852,026	$15,017,155,000

The Government has finally acted to clarify the situation by completely revising the production schedules for the industry, in most cases cutting them back to fit the facts more closely. It is explained that the initial schedules were formulated merely for purposes of bid preparation and the award of contracts and it has been the intent all along to revise such schedules later as the various factors involved in the production of individual items became more clear. While this sounds logical, the result is that the industry is being resoundingly blamed not only by the citizen but by the Admin-

(*Turn to page 473, please*)

CIVIL AIRCRAFT PRODUCTION

Number of Aircraft:	1951	1950
Transports	198	129
Personal	2279	3391
Total	2477	3520
Airframe Weight (lb.):		
Transport	3,203,100	3,305,500
Personal	1,907,900	2,618,900
Total	5,111,000	5,924,400
Dollar Value:		
Transport	$71,276,000	$ 81,483,000
Personal	$16,119,000	$ 18,616,000
Total	$87,395,000	$100,099,000

CIVIL AIRCRAFT ENGINE PRODUCTION

	1951	1950
Engines	4,580	4,314
Horsepower	2,093,800	1,645,500
Value of Engines	$26,448,000	$20,058,000
Value of Parts	$58,583,000	$41,135,000
Total Value	$85,031,000	$61,193,000

Impact of Defense Activities on Petroleum Fuel Supplies

By Adam K. Stricker, Jr.
General Motors Corp.

THE Bureau of Mines has compiled data showing the United States' annual energy supply from mineral fuels and water power, expressed in trillions of Btu. Total energy supply of the U. S. was 21,449 trillion Btu at the close of World War I in 1918. Latest figures show it was 31,786 trillion Btu in 1949 an increase of 10,337 trillion Btu. Coal supplied 17,690 trillion Btu in 1918 and only 12,481 trillion Btu in 1949, a decrease of 5209 trillion. Crude oil and natural gas accounted for only 3058 trillion Btu in 1918, and 17,753 trillion Btu in 1949, an increase of 14,695 trillion Btu. Petroleum accounted for more than the entire increase in the nation's annual energy supply during this 31 year interval.

Table 1 shows the percentage of the total energy supply contributed by each of the major energy sources in 1918 and 1949. During this period, petroleum's share increased from 14.2 to 55.8 per cent. Coal declined from 82.5 to 39.3 per cent. Water power, in spite of the vast river valley developments during the past 20 years, increased its share from only 3.3 to 4.9 per cent of the total.

The United States consumed more than 630 gal of petroleum per person in 1950. Outside the U. S. petroleum consumption was only 29 gal per person. Great Britain had a per capita consumption of less than 126 gal per person.

With only six per cent of the world's population, the U. S. operates about 51 million motor vehicles, about 70 per cent of the world's registrations. Installed horsepower capacity of these vehicles is more than 80

(*Turn to page 460, please*)

U. S. Percentage of Total Equivalent Btu Contributed by Mineral Fuels and Water Power, 1918 and 1949

Year	Total Coal	Petroleum Crude Oil and Natural Gas	Water Power	Total Mineral Fuels and Water Power
1918	82.5	14.2	3.3	100.0
1949	39.3	55.8	4.9	100.0
Difference	−43.2	+41.6	+1.6	

Source: API.

Gasoline Production and Usage 1939-1950

(Thousands of Barrels)

Year	Total Gasoline Production	Aviation Gasoline: Total Production	Aviation Gasoline: Percent of Total Gasoline	Aviation Gasoline: Percent Increase over 1939	Vehicular and Other*: Production	Vehicular and Other*: Percent Increase over 1939
1939	611,043	11,496	1.9		599,547	
1940	616,695	14,736	2.4	28.2	601,959	.4
1941	701,294	21,110	3.0	83.6	680,184	13.4
1942	608,900	54,526	9.0	374.3	554,374	7.5−
1943	608,180	106,223	17.5	824.0	501,957	16.3−
1944	739,340	196,383	26.6	1,608.3	542,957	9.4−
1945	798,194	152,395	19.1	1,225.6	645,799	7.7
1946	776,583	25,412	3.3	121.1	751,171	25.3
1947	839,998	35,296	4.2	207.0	804,702	34.2
1948	921,923	46,246	5.0	302.3	875,677	46.0
1949	962,417	46,953	4.9	308.4	915,464	52.6
1950	1,024,448	51,182	5.0	345.2	973,266	62.3
1951 (First six months)	1,103,092	68,930	6.2	499.6	1,034,162	72.5

* Other Vehicular—Farm tractors, power boats, industrial gasoline engines and naptha for cleaning.

Source: API, Bureau of Mines, Survey of Current Business.

"Give me a place to stand and I'll move the earth." Archimedes meant, with a place to stand in the sky, he could pry the earth from its orbit. In Archimedes' day, the sky was the limit — but no more.

Men go farther and faster now than ever before, the sky's no limit, because progressive SKF bearing design coupled with proven manufacturing know-how assures reliable engine performance in today's rugged aircraft.

SKF intends to continue its four decades of close cooperation with the aviation industry, pioneering aviation's needs for new and improved bearing designs.

And will continue to provide every industry with eight good reasons for preferring SKF: Integrity, Craftsmanship, Metallurgy, Tolerance Control, Surface Finish, Product Uniformity, Engineering Service, Field Service. 7309

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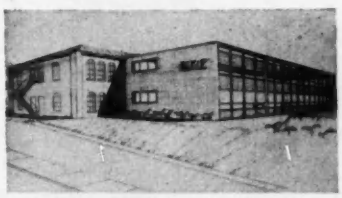
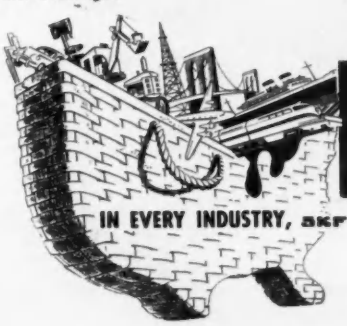


Anticipating aviation's demand for advanced bearing design — SKF is adding a wing to its Philadelphia Research Laboratory that will double its research facilities.



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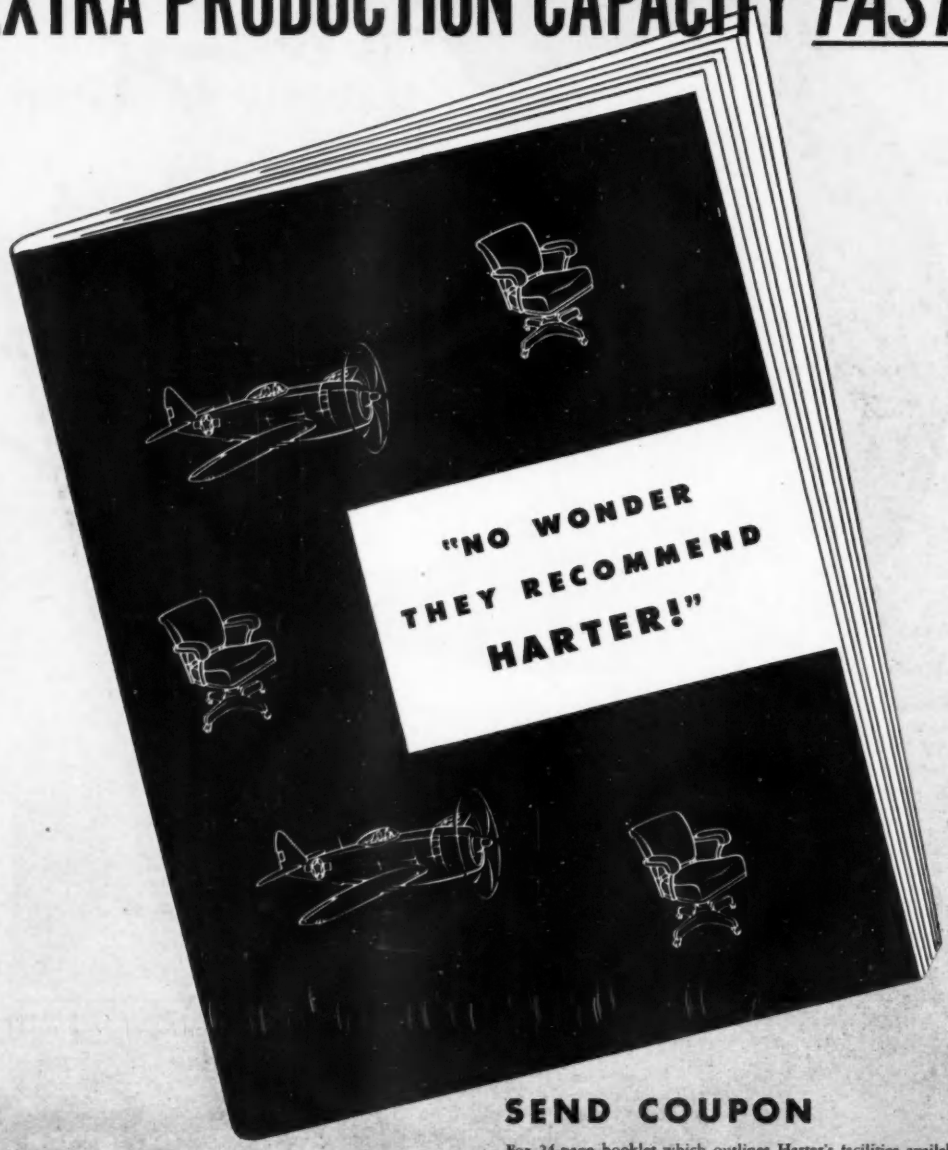

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For 24-page booklet which outlines Harter's facilities available for subcontract work. It shows Harter's capacity for formed parts and assemblies of steel, copper and aluminum which may be just what you need to round out your defense production plans.

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HOT Lacquer NEWS

PUBLISHED PERIODICALLY BY HERCULES POWDER COMPANY IN THE INTERESTS OF BETTER FINISHES AND FINISHING

Hot-Spray Lacquer Up to 50% Faster For Military Equipment Finishing

Douglas Reports Savings in Time and Materials Since Adopting Hot-Spray Method

Thinning lacquer by heat instead of solvents represents the most economical means of securing a fully satisfactory and serviceable finish. Douglas Aircraft Company proves this dramatically on its Navy AD-4's—built by its El Segundo Division.

Here are some cold facts about hot lacquer — verified by Douglas — worth evaluating against your present method of finishing. Comparable savings in time and money on finishing military equipment such as tanks, bombs, shells and grenades can be realized simply by switching to hot-spray lacquer.

- Required film thickness can be applied by one hot coat where two cold cross coats are necessary.
- Application time is reduced 50% with a resultant increase in production.
- Finish is smoother and glossier.
- Sanding between coats is eliminated.
- Better flow-out decreases tendency to sag, blush or orange peel.
- Equivalent of two gallons of lacquer and eight gallons of thinner saved on each plane.

HERCULES POWDER COMPANY
INCORPORATED

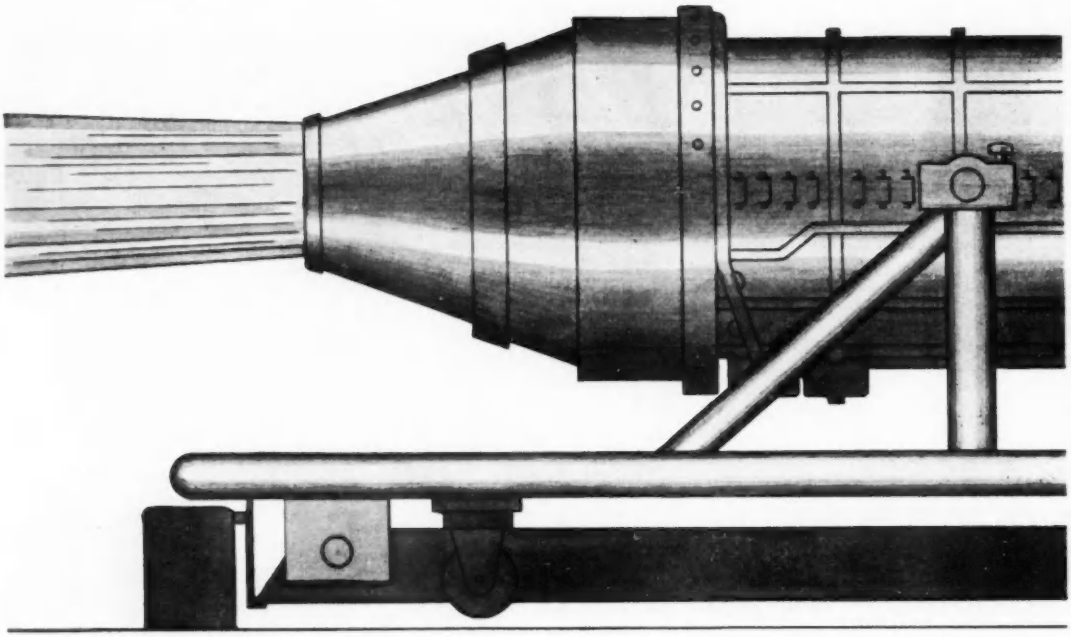
Cellulose Products Department
946 Market Street, Wilmington 99, Delaware

This AD-4, built by Douglas for the Navy, is one of hundreds on which hot-spray lacquer is used to cut finishing costs and time.

You'll want to read all about the broader uses of hot-spray lacquer as it applies to finishing defense items — and your own products. A new military specification for hot lacquer is now issued and official. Identified as "Military Specification MIL-L-11195 (ORD) Lacquer, Lustreless, Hot - Spray (For Ammunition)." Hercules will send you full information on hot lacquer, types of heating equipment available, and the performance record of hot lacquer in many industries. Send for it today.

CL52-1

HERCULES DOES NOT MANUFACTURE LACQUERS OR HOT LACQUER EQUIPMENT, ONLY THE INGREDIENTS FROM WHICH LACQUERS ARE MADE



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Bring Higher Precision in

JET THRUST

with the

BALDWIN

THRUST STAND

The thousands of pounds of thrust needed to project a jet plane through sonic barriers can now be measured with highest accuracy and exact reproductability on the new Baldwin Jet Engine Test Stands at Wright Aeronautical Corporation.

Basic design was worked out in close cooperation with Wright Aeronautical Corporation to eliminate hazards and inaccuracies.

No pit or ramp is required. This makes it unnecessary to install costly air and water scavenging systems to remove combustible vapors. It also eliminates the use of lift trucks in the test cell.

The engine is easily moved and positioned. The engine dolly is wheeled over the thrust stand. Base structure guides it into position.

The mounting imposes no questionable restraint on the weighing system. Air-actuated tapered retractable pins engage with tapered bores, lifting dolly wheels from the floor, and firmly integrating dolly and thrust table.

Safety interlocks prevent accidents. Fuel cannot be supplied until retractable pins are fully engaged.

Maximum accessibility is preserved. Access is limited only by the dolly structure itself.

Top precision in measurement is attained. The Baldwin SR-4® Load Cell accurately transmits forces to the remote indicating instrument. Frictional and other unmeasurable losses are greatly reduced. The restraint exercised by the four stay-plates can be calibrated out of the indicating instrument.

TESTING

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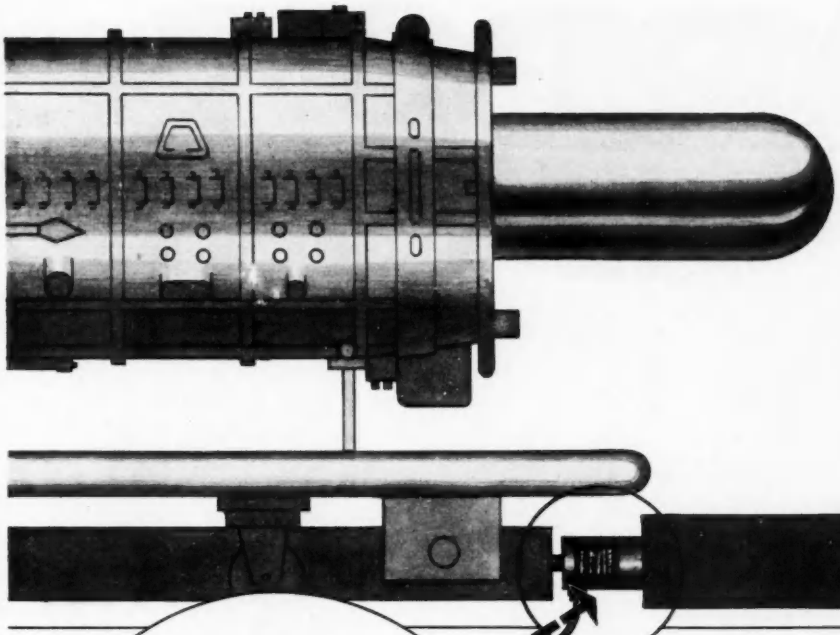
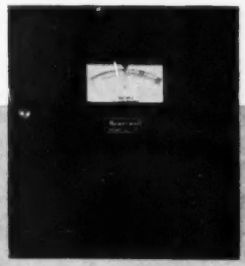
Eddystone Division, Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa.



BALDWIN SR-4® LOAD CELL

The Heart of the Weighing System

The Baldwin Type "U-1" SR-4® Load Cell is a sensitive, accurate device that translates changes in weight into proportional changes in electrical energy. Ruggedly constructed, hermetically sealed, and with no moving parts, it employs the well-known SR-4® strain gage as a pickup. The gage is mounted on a rectangular steel column. Deformation of this column under load is accurately calibrated.



External circuits are entirely electrical. Recording, indicating or monitoring instruments and controls can be located at any remote point. This is but one of dozens of current applications for this load cell . . . and its possibilities have not yet been explored.

Baldwin currently offers the most complete line of testing equipment available. This line is constantly expanded to meet new needs. In addition, Baldwin is always ready to work with you in developing special equipment to solve special problems. Your inquiries are welcome.

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In Canada: Peacock Bros., Ltd., Montreal, Quebec

CARDOX*

FIRE PROTECTION

CARDOX Airport
Fire Truck—Model AJ2

On the Field

An Answer to Airport Crash Fires

Proved by Experience!

The CARDOX Airport Fire Truck—Model AJ2—is an improved adaptation of the hundreds of CARDOX trucks that have made fire-fighting history at military airfields. It is the most effective, practical answer yet developed for airport crash fires.

The Model AJ2 attacks fire with the overwhelming impact of 2 tons of CARDOX Low Pressure carbon dioxide, supplemented by 2000 to 2300 gallons of expended foam. Both are applied at the high rates necessary to stop gasoline fires fast, and keep them stopped . . . by the most powerful combination of specialized discharge equipment ever assembled in one truck!

Most Effective Means

"The selection of carbon dioxide and foam (with option to 'fog-foam' or water spray) is recommended as the most effective means currently available for aircraft rescue and fire fighting."

NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET No. 403

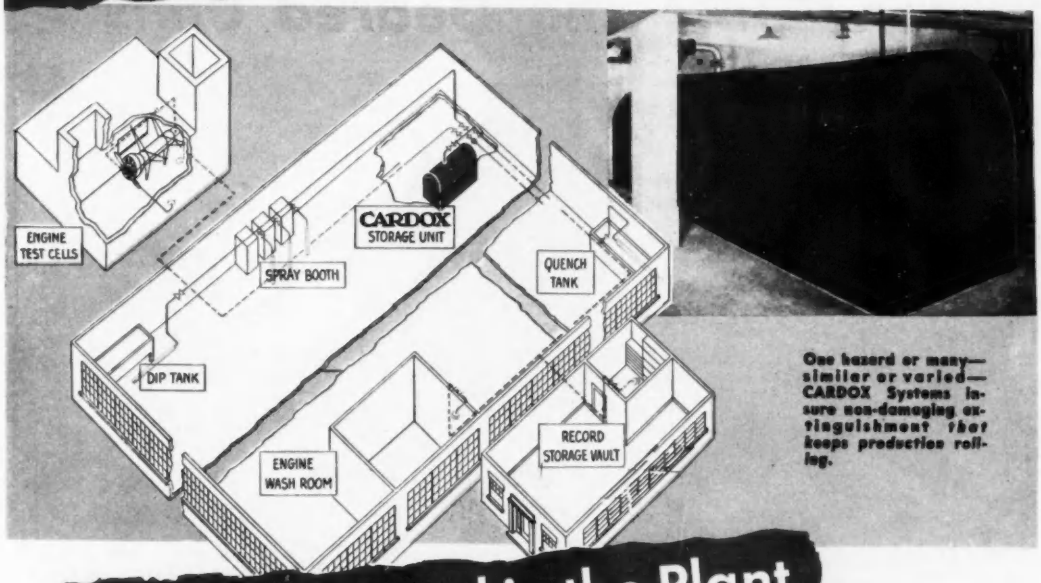
The CARDOX Model AJ2 meets NFPA Carbon dioxide recommendations for aircraft weighing over 90,000 lbs. (gross).

When you need airport fire protection, find out how CARDOX' great and varied experience meets that need—*best*. Call upon us. Meanwhile write today for information on the Model AJ2 and other CARDOX mobile equipment.

***LOW PRESSURE CARBON DIOXIDE SYSTEMS AND EQUIPMENT**

Covered by U. S. and Foreign Patents Issued and Pending

meets Your needs Best!



One hazard or many—similar or varied—CARDOX Systems insure non-damaging extinguishment *that keeps production rolling.*

In Test Cells and in the Plant

Let's Look at the Record!

Thousands of test cells are now successfully and safely protected by CARDOX Low Pressure Carbon Dioxide Systems.

One manufacturer alone has completed over 10,000 engine tests without a single engine loss due to fire.

No Damage to Engine or Instrumentation

Carbon dioxide does not damage engines under test —cannot damage instruments or upset calibration. For both test cells and control rooms if offers security not possible with any other extinguishing media.

In CARDOX Systems carbon dioxide is made spectacularly better! It can be applied at rates so high as to stop big fires almost instantly. Or with spurt systems (part of the overall CARDOX System) it can extinguish engine or spill fires without shut-down or interruption of the test.

For Many Other Hazards Also

The same safety that has made CARDOX Systems pre-eminent for test cells is assured for dozens of other types of hazards. These include:

Quench Tanks Spray Rooms Pump Rooms
Flammable Liquid Storage

and just about every tough hazard in industry.

Whatever your hazards, find out what CARDOX can do about them. Ask for a visit from a CARDOX Experienced Engineer.

CARDOX SYSTEMS are listed by Underwriters' Laboratories, Inc.—approved by Factory Insurance Association and Associated Factory Mutuals.

CARDOX owns and maintains its own national system for distribution of liquid CARDOX Carbon Dioxide—Your Cardox System is always operable when you need it.

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THE STEEL PRODUCTS ENGINEERING CO.

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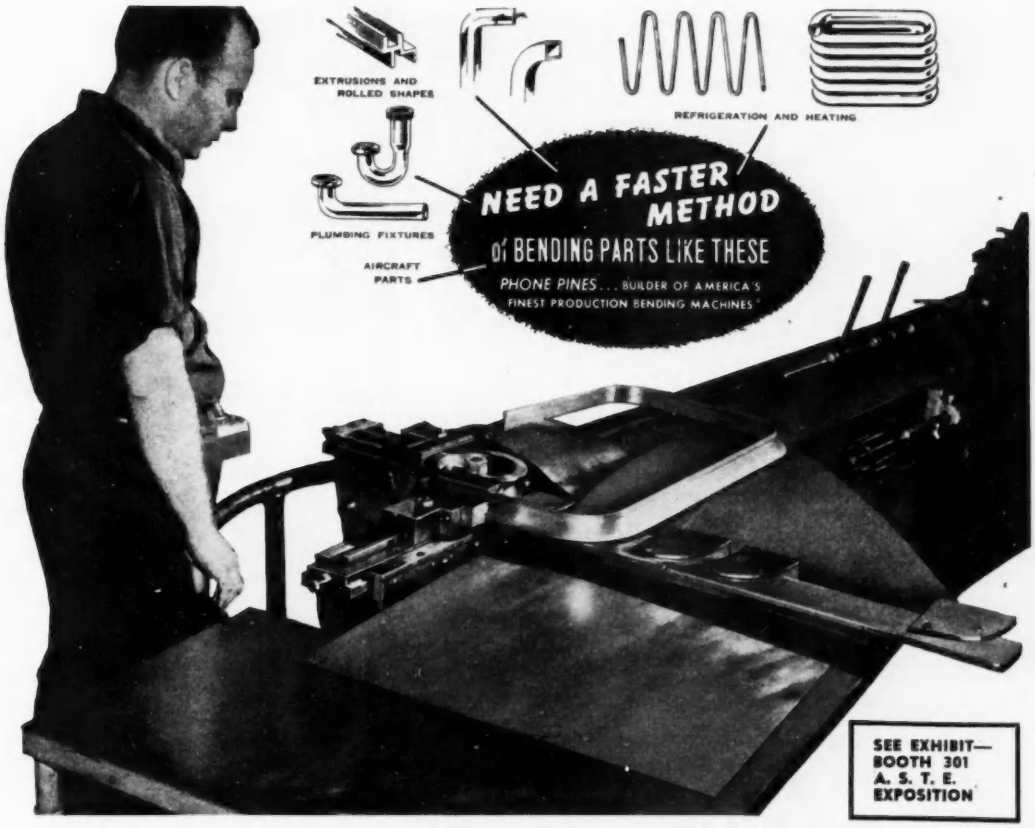

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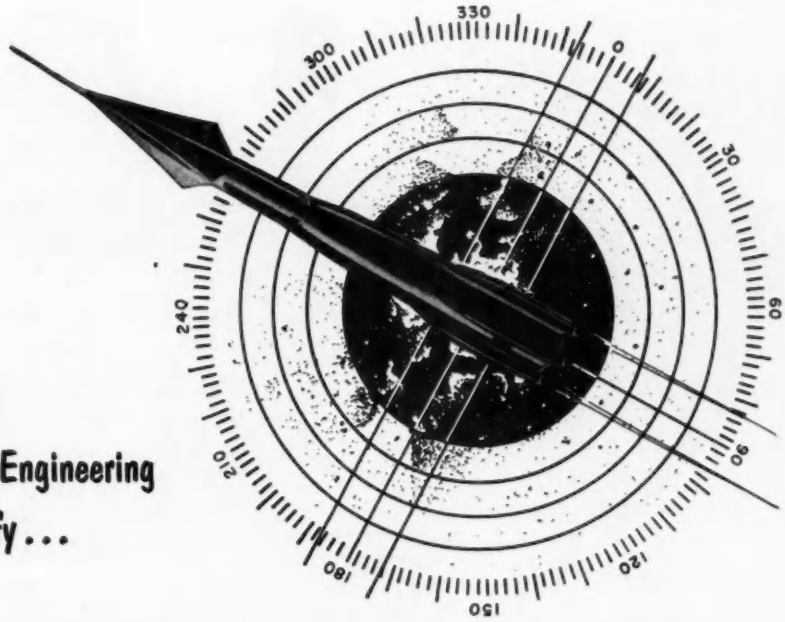

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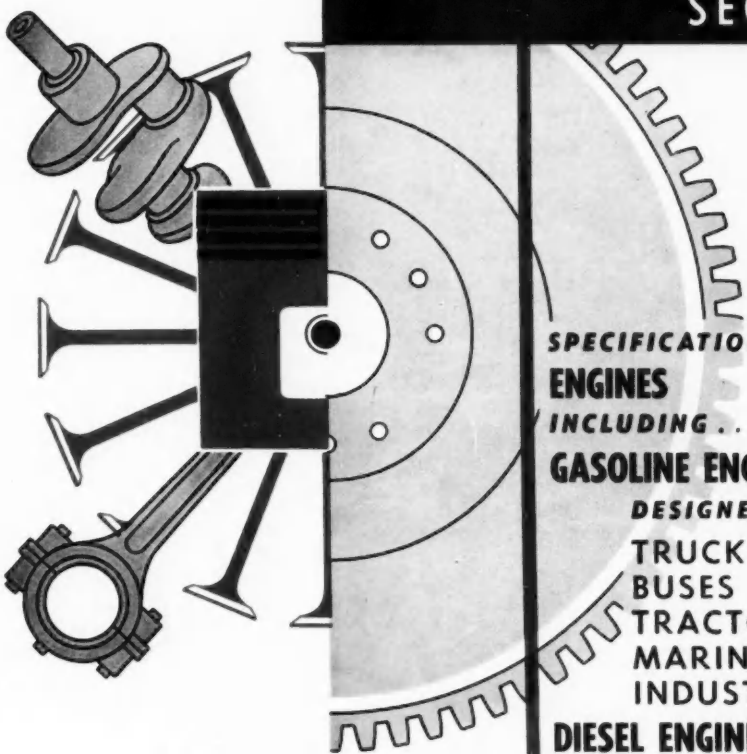
AUTOMOTIVE INDUSTRIES
34TH ANNUAL STATISTICAL ISSUE

AUTOMOTIVE ENGINE SECTION



SPECIFICATIONS OF
ENGINES
INCLUDING . . .

GASOLINE ENGINES
DESIGNED FOR
TRUCKS
BUSES
TRACTORS
MARINE AND
INDUSTRIAL USE

DIESEL ENGINES
DESIGNED FOR
TRUCKS
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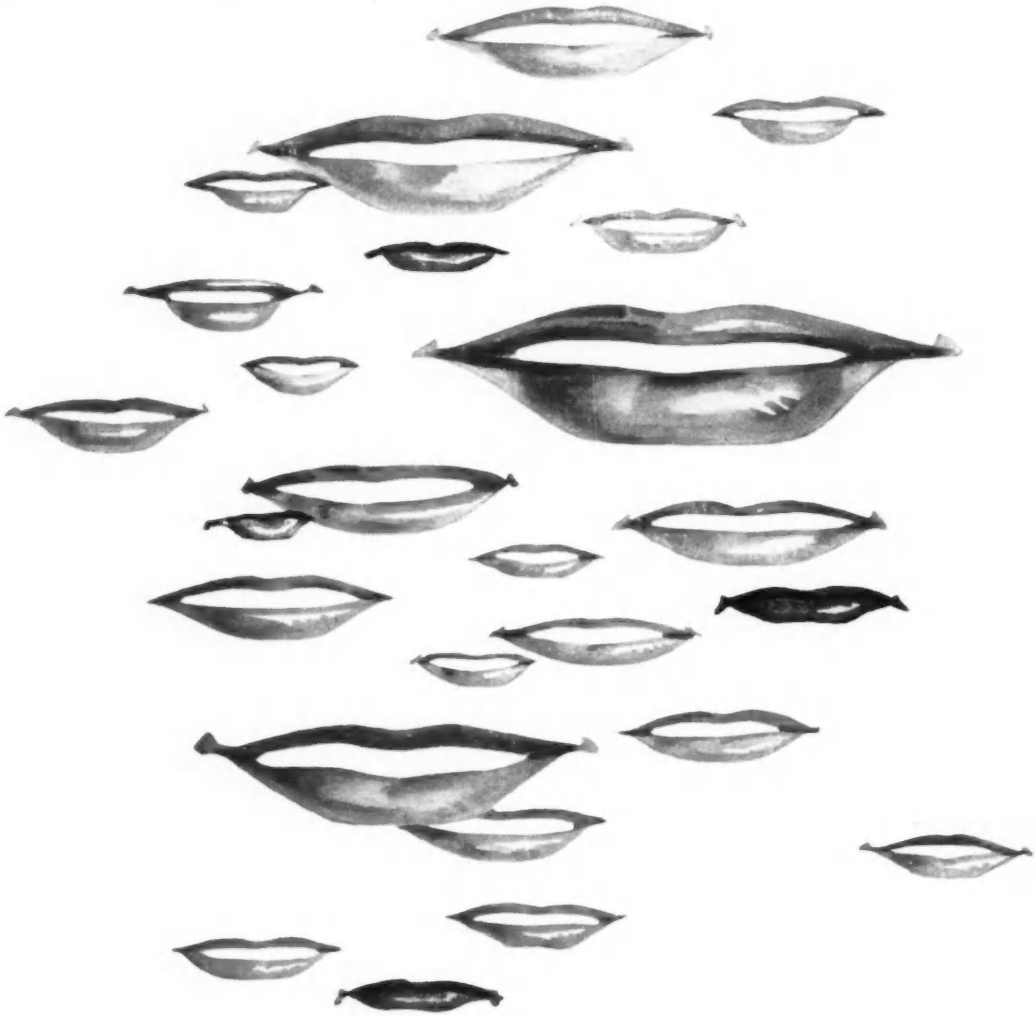
- **SMALL GASOLINE ENGINES**
- **OUTBOARD MOTORS**



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leading engine manufacturers using chrome rings

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The Standard of Comparison

The application of solid chrome plating to piston rings, as perfected by Perfect Circle, more than doubles the life of pistons, rings and cylinders. Performance data will be furnished on request. Write Perfect Circle Corporation, Hagerstown 3, Indiana.

1952 AUTOMOTIVE GASOLINE ENGINES

REFERENCES AND ABBREVIATIONS

*—Includes rod, cap, screws, wristpin, bushing, and bearing.
°—Stellite faced.
•—Weight complete with ignition and carburetor.
••—Pressure also to Camshaft thrust bearing
†—As mounted in chassis on tilt.
■—Also available in reduction gear models.
▼—Also available in R.H. rotation.
▼▼—High output.
‡—Tocco hardened.
‡‡—Forked 23.7 oz.—Blade 22.4 oz.
♣—Weight per pair.
§—4 Rings used on Trucks and 5 on Coaches.
♠—5.20 for gasoline—6.00 for natural gas or butane.
♠♠—Two rods used; 1 clamped tight weighing 308 oz., and 1 loose outside of bearing weighing 240 oz.
‖—Dual.
‖‖—Cast Iron 315, Aluminum 250 lbs.
‡—Super-Charged engine.
°°—Weight of piston only.
^—For cars—intake and exhaust lift—.3275 in.
♣—600 lbs. for 1½ ton special and 2 ton trucks, 541 lbs. for cars using Powerglide transmission.
•—For cars—39/64 in.
^^—577 lbs. for cars & ½ ton trucks; 582 lbs. for ¾, 1 & 1½ ton trucks.
(2)—Two used.
(4)—Four used.
(7)—Roller bearings.
(9)—Ball bearings.
(11)—Automotive power ratings.
(12)—Industrial power ratings.
(14)—Unilay Type 307 head, 3140 steel stem.
(a)—Main bearings.
(b)—Wristpins.
(c)—Connecting rods.
(d)—Camshaft.
(e)—Accessory drive.
(f)—Valve lifters or rocker arms and shafts.
(g)—Timing gears or chain.
(h)—Intake 30, Exhaust 45.
(j)—Timken Cone 14139, Cup 14276.
(k)—Intake 30, Exhaust 44.
(m)—A model in this series is also available for use with liquid petroleum gases. The engine will have a higher compression ratio, brake horsepower and torque.
(n)—Intake 15, Exhaust 45.
(o)—Uniloy 21-12 (Type 307) with valve rotators on 473.
(p)—Hydraulic valve lifters and cylinder walls.
(r)—Reverse gear.
(s)—Fan drive gear.
(t)—Tappets and valve mechanism.
(u)—Complete with SAE housing.
(x)—Sodium cooled.
(z)—Intake 30, Exhaust 29.
AC—Aluminum or cast iron.
ACI—Alloy cast iron.
AF—Aircooled fin.
Al—Alloy Iron.
Al—Aluminum alloy.
Ala—Aluminum alloy, anodized.
Alb—Aluminum bronze.
Als—Aluminum alloy with steel strut.
Alst—Aluminum alloy with steel strut, tin plated.
Alt—Aluminum alloy (Tin coated).
AS—Alloy steel.
Aus—Austenitic steel.
B—Buses.
BB—Ball & Ball.
BE—Bare engine.
Bo—Used in both intake and exhaust seats.
C—Cars.
CA—Cast alloy.
Car—Carter Carburetor Corp.
CAS—Cast alloy steel.
Ch—Chain.
CHS—Chrome nickel silicon steel.
CI—Cast iron.
CIA—Cast iron, anodized.
CMS—Carbon manganese steel.
CMT—Chromium tungsten steel.
CNS—Chrome nickel steel.
COE—Cab over engine.
CS—Carbon steel.
D—Dry liners.
DC—Durachrome castings.
DFS—Drop forged steel.
Dia—Diachrome.
Dm—Durachrome.
Dur—Duralumin.
E—Used on exhaust valve seats.
EA—Engine with standard accessories.
Eat—Eatonite.
Ens—Ensign.
F—F-head.
FA—Fire apparatus.
FC—Forward control chassis.
H—Horizontal motor.
HC—Helical gear and chain.
HFA—Hard facing alloy.
HG—Helical gear.
Hh—Horizontal in head (Valve).
Hol—Holley Carburetor Co.
I—In head (Valves).
In—Integral.
Ind—Industrial.
Jad—Jadson.
L—Valves at side (L-Head).
M—Marine.
MA—Molybdenum alloy.
MaS—Marvel-Schebler Carburetor Div.
MCS—Molybdenum chrome steel.
MI—Moly Iron.
MS—Manganese steel.
N—No or none.
NCI—Nickel cast iron.
NDI—Nodular iron.
Nic—Nickel chrome.
Nif—Nifferrite.
Nir—Ni-Resist.
NS—Nickel steel.
Op—Optional.
PJ—Pump jet.
PS—Pump splash system.
R-P—Rochester Products.
SA—Special alloy.
SB—Spiral bevel gear.
SCS—Silicon chrome steel.
Se—Separate.
SG—Spur gear.
SF—Steel forging.
Sil—Silichrome steel.
Spec—Special.
SS—Semi-steel.
St—Stellite steel.
Ste—Steel.
Str—Stromberg-Elmira Div.
T-12—Thompson Products No. 12.
Th—Valve opposite (T-Head).
T—Trucks.
TA—Tungsten alloy.
Til—Tillotson Mfg. Co.
Tr—Tractors.
TS—Tool steel.
Tun—Tungsten steel.
W—Wet Liners.
WM—Wausau Cast Moly No. 1.
Y—Yes.
Zen—Zenith Carburetor Div.
ZC—Zenith or Carter.

Internal Combustion Engine Production

Internal-Combustion Engine Production

(Except Automotive, Aircraft & Outboard)

1950 and 1947 Compared

Industry Division, Bureau of the Census

Type of Engine	Total Production Units	Shipments to Other Companies: Units	Shipments to Other Companies: Value at Plant
1950			
Gasoline	2,831,761	2,079,641	$182,237
Diesel	98,444	42,449	100,532
Outboard	367,173	367,173	41,037
Other*	129,666	127,766	48,062
Total—1950	3,427,044	2,617,029	$371,868
1947			
Gasoline	2,140,516	1,595,332	$154,118
Diesel	100,183	63,058	156,969
Outboard	584,458	584,458	50,038
Other*	59,566	56,783	23,510
Total—1947	2,884,723	2,299,631	$384,635

*Includes miniature (model) engines, gas engines and dual-fuel engines.

1950 Gasoline Engine Production

(Except Automotive, Aircraft & Outboard)

In Units and Their Value, by Hp Classification

Industry Division, Bureau of the Census

Hp Classifications	Total Production Units	Shipments to Other Companies: Units	Shipments to Other Companies: Value at Plant
Under 2 hp	1,285,101	508,874	$11,131
2.0-2.9 hp		572,827	15,304
3.0-3.9 hp	234,510	207,207	9,330
4.0-4.9 hp	77,839	64,166	3,940
5.0-5.9 hp	183,690	143,442	13,703
6.0-6.9 hp	196,204	43,886	3,750
7.0-7.9 hp		10,870	1,256
8.0-8.9 hp		82,009	7,730
9.0-9.9 hp		14,525	2,090
10.0-10.9 hp		30,884	5,146
11-15 hp	86,412	55,545	8,251
16-20 hp	91,430	81,123	13,667
21-25 hp	111,714	32,605	5,838
26-30 hp	184,963	47,609	15,704
31-35 hp		29,315	
36-40 hp	237,342	21,860	4,843
41-45 hp		12,771	3,315
46-50 hp		6,569	1,618
51-60 hp	58,301	41,487	11,038
61-70 hp	25,857	22,666	7,271
71-80 hp	56,353	18,432	6,455
81-90 hp		5,336	2,568
91-100 hp		9,036	3,580
101-150 hp		13,494	7,406
151-200 hp		1,664	2,258
201 hp and over	2,040	2,040	15,045
Total—1950	2,831,761	2,079,641	$182,237

1950 Diesel Engine Production

(Except Automotive)

In Units and Their Value, by Hp Classification

Industry Division, Bureau of the Census

Hp Classifications	Total Production Units	Shipments to Other Companies: Units	Shipments to Other Companies: Value at Plant
Under 6 hp	2,672	243	$100
6-10 hp		476	316
11-20 hp		1,120	706
21-30 hp	2,150	214	221
31-40 hp		1,333	789
41-50 hp	87,329	3,849	2,675
51-70 hp		11,033	9,620
71-100 hp		5,863	8,652
101-150 hp		9,569	22,884
151-200 hp		6,372	19,443
201-300 hp	2,560	1,219	8,516
301-400 hp		645	5,704
401-500 hp		218	3,947
501-600 hp		80	3,298
601-700 hp		22	953
701-800 hp	711	27	917
801-900 hp		22	1,318
901-1,000 hp		27	1,188
1,001-1,500 hp.	3,022	62	3,983
1,501 and over		55	5,307
Total—1950	98,444	42,449	$100,532

1952 AUTOMOTIVE

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Allis-Chalmers	B-125	Tr,Ind	4-3⅝x3½	30-1800	28-1800	125.2	6.25	87-1100 (EA)	W	In	I	XCR	1.43	1.31	1.20	1.03	.376	.376	.341	.341
2		W-201	Tr,Ind	4-4x4	44-1800	40-1800	201.1	5.75	128-1200 (EA)	W	In	I	XCR	1.68	1.50	1.50	1.32	.376	.376	.372	.372
3		U-318	Tr,Ind	4-4½x5	56-1400	51-1400	318.1	4.75	200- 900 (EA)	W	In	I	Sil	2.03	1.78	1.75	1.50	.375	.375	.372	.372
4		E-563	Tr,Ind	4-5¼x6½	81-1050	74-1050	562.8	5.20	400- 650 (EA)	W	In	I½	Sil	2.21	2.21	2.00	2.00	.440	.417	.497	.497
5		L-844	Tr,Ind	6-5¼x6½	121-1050	110-1050	844.3	5.20	590- 650 (EA)	W	In	I	Sil	2.21	2.21	2.00	2.00	.440	.417	.497	.497
6	Autocar	377	T	6-4x5	119-2800		377.0	6.00	288-1100 (BE)	N	Se	L	XB	1.90	1.78	1.68	1.58	.391	.406	.434	.496
7		447	T	6-4¼x5½	145-2700		447.0	6.00	353-1100 (BE)	N	Se	L	XB	2.12	1.93	1.93	1.79	.452	.452	.434	.496
8		501	T	6-4½x5¼	165-2700		501.0	6.00	400-1100 (BE)	N	Se	L	XB	2.12	1.93	1.93	1.79	.452	.452	.434	.496
9	Brennan	20	Ind	4-2¼x3½	20-3900	15-3900	50.0	7.40	34-3200 (EA)	N	Se	L	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
10		Imp.	M	4-2¼x3½	25-4000	20-4000	50.0	7.40	34-3200 (EA)	N	Se	I	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
11		75	T,In	6-3⅛x4⅝	90-3500	75-3300	230.3	6.7	175-1000 (EA)	N	In	L	Sil	1.50	1.50	1.37	1.25	.343	.343	.312	.312
12		Frontena	M	6-3⅛x4⅝	95-3200	92-3200	230.3	5.50	184-1250	N	In	L	Sil	1.50	1.37	1.37	1.25	.343	.343	.312	.312
13		CE	Ind	4-4½x5	54-1600	45-1600	318.0	5.00	203-1000 (EA)	N	Se	L	Sil	2.00	2.00	1.87	1.87	.375	.375	.375	.375
14		E-4	M	4-4½x5	54-1600	45-1600	318.0	5.00	203-1000 (EA)	N	Se	L	Sil	2.00	2.00	1.87	1.87	.375	.375	.375	.375
15		B-70	T,B,Tr,Ind	6-4x5½	90-2000	75-2000	415.0	4.50	278- 900 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
16		100	M	6-4x5½	94-2000	80-2000	415.0	6.00	278- 900 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
17		B-100	T,B,Tr,Ind	6-4¼x5½	94-2000	80-2000	496.0	4.50	350-1200 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
18		125	M	6-4¼x5½	110-2200	94-2200	496.0	6.00	350-1200 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
19		180	M	6-4½x6½	150-2000	130-2000	620.3	6.00	500-1200 (EA)	N	Se	I	Sil	2.50	2.50	2.12	2.12	.437	.437	.500	.500
20	Buda	4B-153	Tr,Ind	4-3⅛x4½	47-2800	42-2800	153.0	6.00	112-1500 (BE)	W	In	I	2112	1.50	1.28	1.37	1.12	.429	.429	.312	.312
21		4B-182	Tr,Ind	4-3⅜x4½	54-2800	49-2800	182.0	5.54	140- 800 (BE)	N	In	I	2112	1.50	1.28	1.37	1.12	.429	.429	.312	.312
22		6B-230	Tr,Ind	6-3⅛x4½	72-3000	65-3000	230.0	6.00	168-1000 (BE)	W	In	I	2112	1.50	1.28	1.37	1.12	.429	.429	.312	.312
23		6B-273	Tr,Ind	6-3¼x4½	82-2800	75-2800	273.0	5.40	204-1200 (BE)	N	In	I	2112	1.50	1.28	1.37	1.12	.429	.429	.312	.312
24		HP-326	B,Tr,Ind	6-3⅜x4⅝	78-2400	66-2400	326.0	5.40	220-1100 (BE)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
25		HP-351	Tr,Ind	6-3⅜x5¼	84-2400	71-2400	351.0	5.83	232- 900 (BE)	N	In	L	2112	1.65	1.53	1.50	1.37	.344	.344	.372	.372
26		K-428	B,Tr,Ind	6-4⅛x5⅛	107-2400	95-2400	428.0	5.33	276-1100 (BE)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
27		L-525	Tr,Ind	6-4⅛x5½	113-2400	94-2400	525.0	4.75	340- 900 (BE)	N	In	L	2112	1.90	1.78	1.75	1.62	.400	.400	.372	.372
28		LO-525	T,B,Tr,Ind	6-4⅛x5½	157-2400	139-2400	525.0	5.00	400-1200 (BE)	N	In	L	2112	1.96	1.68	1.75	1.50	.468	.468	.372	.372
29		4-MO-645	Tr,Ind	4-5½x6½	123-1400	110-1400	645.0	5.43	448- 800 (BE)	W	In	I	2112	2.64	2.02	2.37	1.87	.540	.540	.437	.437
30		6-MO-893	T,Ind,M	6-5½x6	199-2000	170-2000	893.0	5.56	670-1000 (BE)	W	In	I	2112	2.64	2.02	2.37	1.87	.540	.540	.433	.433
31		6-MO-970	T,Ind,M	6-5½x6½	200-1800	171-1800	970.0	5.43	720- 800 (BE)	W	In	I	CNS	2.45	2.02	2.37	1.87	.540	.540	.433	.433
32		8-MO-1290	Ind	8-5½x6½	293-1800	248-1800	1290.0	5.43	1000-1100 (BE)	W	In	I	2112	2.71	2.53	2.50	2.28	.703	.703	.558	.558
33		PC-1879	Ind	6-6⅜x8¼	232-1000	197-1000	1879.0	6.00	1300- 800 (BE)	W	In	I	2112	2.71	2.53	2.50	2.28	.703	.703	.558	.558
34		PCG-1879	Ind	6-6⅜x8¼	232-1000	197-1000	1879.0	6.00	1300- 800 (BE)	W	In	I	2112	2.71	2.53	2.50	2.28	.703	.703	.558	.558
35		PCS-1879	Ind	6-6⅜x8¼	340-1200	310-1200	1879.0	5.27	1540- 950 (BE)	W	In	I	2112	2.71	2.53	2.50	2.28	.703	.703	.558	.558
36		8PC-2505	Ind	8-6⅜x8¼	356-1200	320-1200	2505.0	6.00	1860- 750 (BE)	W	In	I	CNS	2.71	2.53	2.50	2.28	.703	.703	.558	.558
37		8PCS-2505	Ind	8-6⅜x8¼	465-1200	420-1200	2505.0	5.27	2110- 950 (BE)	W	In	I	CNS	2.71	2.53	2.50	2.28	.703	.703	.558	.558
38	Chevrolet	1952	T,B,C	6-3⅝x3⅛	105-3600	98-3500	235.5	6.70	186-2000 (EA)	N	In	I	AS	1.94	1.50	1.44	1.25	.294[4]	.312[4]	.341	.340
39		1952	COE	6-3⅝x3⅛	100-3500	96-3400	235.5	6.70	187-2000 (EA)	N	In	I	AS	1.94	1.50	1.44	1.25	.294	.312	.341	.340
40		1952	FC	6-3⅞x3⅛	92-3400	85-3300	235.5	6.70	176-1700 (EA)	N	In	I	AS	1.94	1.50	1.44	1.25	.294	.312	.341	.340
41		1952	T,B,C	6-3⅞x3¾	92-3400	85-3300	216.5	6.60	170-1500 (EA)	N	In	I	AS	1.64	1.50	1.25	1.25	.294	.312	.341	.340
42	Chris-Cr	*B	M	4-3⅛x4		90-3200	132.7	7.50	108-2400 (EA)	N	In	L	2112N	1.48	1.36	1.25	1.12	.312	.312	.310	.310
43		*K	M	6-3⅛x4½		95-3200	229.7	7.35	173-1800 (EA)	N	In	L	2112N	1.61	1.39	1.25	1.25	.311	.311	.310	.310
44		*KL	M	6-3⅛x4½		105-3200	236.6	7.52	190-2200 (EA)	N	In	L	2112N	1.61	1.39	1.25	1.25	.311	.311	.310	.310
45		KLC	M	6-3⅛x4½		120-3800	236.6	7.52	175-3000 (EA)	N	In	L	2112N	1.61	1.39	1.25	1.25	.344	.344	.310	.310
46		KBL	M	6-3⅛x4½		131-3800	236.6	7.52	191-3000 (EA)	N	In	L	2112N	1.61	1.39	1.25	1.25	.344	.344	.310	.310
47		*N	M	6-4x4½		138-3000	320.4	7.50	239-2400 (EA)	N	In	L	2112N	1.83	1.68	1.81	1.50	.356	.356	.372	.372
48		*ML	M	6-4x4½		145-3000	339.2	7.90	267-2400 (EA)	N	In	L	Eat	1.83	1.68	1.81	1.50	.356	.356	.372	.372
49		MBL	M	6-4x4½		158-3400	339.2	7.90	266-2600 (EA)	N	In	L	Eat	1.83	1.68	1.81	1.50	.387	.387	.372	.372
50		*W	M	6-4½x4⅝		160-3000	404.3	6.40	322-1500 (EA)	N	In	L	2112N	1.92	1.78	1.87	1.68	.388	.388	.372	.372
51	Chrysler	M46 Ace	M	6-3⅛x4⅝		87-2800	217.7	6.60	180-1600 (EA)	N	In	L	Sil	1.53	1.41	1.41	1.28	.375	.375	.340	.340
52		M46 Ace Spec	M	6-3⅛x4⅝		105-3600	217.7	7.00	182-1600 (EA)	N	In	L	Sil	1.53	1.41	1.41	1.28	.375	.375	.340	.340
53		M47 Crown	M	6-3⅞x4½		104-2800	250.6	6.50	210-1600 (EA)	N	In	L	Sil	1.72	1.53	1.44	1.38	.375	.375	.340	.340
54		M47 Crown Spec	M	6-3⅞x4½		125-3600	250.6	7.00	210-1600 (EA)	N	In	L	Sil(x	1.72	1.53	1.44	1.38	.375	.375	.340	.434
55		M48 Royal	M	8-3⅛x4⅛		135-2800	323.5	6.80	268-2000 (EA)	N	In	L	Sil	1.53	1.34	1.41	1.22	.375	.375	.340	.340
56		M48 Royal Spec	M	8-3⅛x4⅛		165-3600	323.5	7.00	280-2400 (EA)	N	In	L	Sil(x)	1.53	1.34	1.41	1.22	.375	.375	.340	.434
57		M49 Majestic	M	6-4x5		160-3000	376.9	6.50	308-1600 (EA)	N	In	L	Sil(x	1.94	1.75	1.78	1.59	.410	.379	.371	.434
58		Ind. 5A	Ind	6-3¼x4⅝	96-3600	82-3600	217.7	6.60	141-1200 (EA)	N	In	L	XB	1.53	1.41	1.41	1.28	.379	.379	.340	.340
59		Ind. 6A	Ind	6-3⅜x4⅝	102-3600	83-3200	230.2	6.70	152-1200 (EA)	N	In	L	XB	1.53	1.41	1.41	1.28	.364	.364	.340	.340
60		Ind. 7A	Ind	6-3⅞x4½	109-3600	91-3200	236.6	6.60	158-1200 (EA)	N	In	L	XCR	1.72	1.50	1.56	1.38	.379	.379	.340	.340
61		Ind. 8A	Ind	6-3⅞x4½	114-3600	98-3200	250.6	6.60	167-1400 (EA)	N	In	L	XB	1.72	1.50	1.56	1.38	.379	.379	.340	.340
62		Ind. 12A	Ind	8-3⅛x4⅛	130-3400	97-2500	323.5	6.50	219-1600 (EA)	N	In	L	XB(x	1.53	1.34	1.41	1.22	.375	.375	.340	.340
63		Ind. 13A	Ind	6-3¼x4⅛	122-3200	91-2600	306.5	6.50	202-1200 (EA)	N	In	L	XB(x	1.94	1.75	1.78	1.59	.410	.410	.371	.433
64		Ind. 14A	Ind	6-3¾x5	126-3000	96-2500	331.4	6.46	220-1200 (EA)	N	In	L	XB(x	1.94	1.75	1.78	1.59	.410	.410	.371	.433
65		Ind. 15A	Ind	6-4x5	153-2800	116-2400	376.9	6.50	271-1200 (EA)	N	In	L	XB(x	1.94	1.75	1.78	1.59	.410	.410	.371	.433
66	Climax	R41	Ind	4-6x7	123-1200	112-1200	791.6	4.70	525- 750 (EA)	N	Se	I	Sil	2.50	2.50	2.25	2.25	.500	.500	.562	.562
67		R61	Ind	6-6x7	183-1200	165-1200	1187.4	4.70	802- 700 (EA)	N	Se	I	CNS	2.50	2.50	2.25	2.25	.500	.500	.562	.562
68		V-122	Ind	12-7x7	495-1200	445-1200	3232.0	4.90	2460- 750	W	Se	I	Sil	2.81	2.68	2.50	2.37	.687	.687	.562	.562
69		V-80	Ind	8-7x7	330-1200	295-1200	2155.0	4.90	1570- 800	W	Se	I	Sil	2.81	2.68	2.50	2.37	.687	.687	.562	.562
70		V-125	Ind	12-7½x7	605-1200	545-1200	3711.0	5.20	2900- 850 (BE)	W	Se	I	Sil	2.78	2.63	2.50	2.38	.687	.687	.560	.560
71	Continental	N-4062	Tr	4-2⅝x3½	25-8 3400		62.0	6.60	41-2000 (BE)	N	In	L	Op	.895	.895	.750	.750	.187	.187	.314	.312
72		N-56	Ind	4-2⅝x3½	13-8 2000		56.0	6.80	39.5-1200 (BE)	W		L	Op	1.00	.895					.315	.313
73		N-62	Ind	4-2⅝x3½	15 2200		62.0	6.46	43-1400 (BE)	N	In	L	Op	.895	.895	.750	.750	.187	.187	.314	.312
74		Y-69	Ind	4-2⅝x3½	21.4-2400		69.0	6.60	48-2000 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
75		Y-4069	Tr	4-2⅝x3½	28-3400		69.0		51-2000 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
76		Y-91	Ind	4-2⅞x3½	28.5-2400		91.0	6.60	67-1800 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
77		Y-4091	C,Tr	4-3⅛x3½	36-3400		91.0		70-1600 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
78		Y-112	Ind	4-3⅛x3½	32-2400		112.0	6.60	82-1400 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
79		F-124	Ind	4-3x4⅝	36-2400		124.0	6.30	91-1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.334
80		F-4124	C,T,Tr	4-3x4⅝	47 3200		124.0		94-1600 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.281	.281	.341	.338

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

GASOLINE ENGINES

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT																
Seats														MAIN BEARINGS													
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Carburetor Make	Carburetor Size	Engines Weight without Carburetor or Ignition (Lb.)	Overall Dimensions (In.) Width	Overall Dimensions (In.) Height	Overall Dimensions (In.) Length	Clutch Housing S.A.E. Nos.)	Line Number
45	N	T-12	HG	Al	25	.813x2.87	4	1040	6½	29	1045	N	1.93x1.43	3	2.25x1.62	2.25x1.50	adfg	Zen	⅞	370	18⅛	31½	27	5	1
45	E	T-12	HG	Al	40.1	.969x3.50	4	1040	7½	42	1045	N	2.37x1.75	3	2.43x1.37	2.47x1.75	acdfg	Zen	1	540	23	31⅝	33½	4	2
30	E	T-12	HG	CI	99	1.31x4.06	5	1045	9½	92	1045	N	2.37x2.37	3	2.50x2.31	2.50x2.75	abcdfg	Zen	1¼	985	26	37½	43¾		3
45	E	T-12	HG	CI	162	1.50x4.87	4	1040	13	182	1045	N	2.75x3.24	3	3.00x3.50	3.00x4.75	abcdfg	Zen	1½	2020	27	47¼	53	1	4
45	E	T-12	HG	CI	162	1.50x4.87	4	1040	13	182	1045	N	2.75x3.24	4	3.00x3.50	3.00x4.75	abcdfg	Zen(2)	1½	2810	29¼	63¼	72½	1	5
45	E	71360	HG	Al	43	1.12x3.43	4	NE8640	10½	85	CS	Y	2.37x1.62	7	3.25x1.78	3.25x2.46	abcdg	Zen	1¼	1230	23½	34⅝	45	3	6
45	E	4140	HG	Al	51	1.12x3.68	4	NE8640	10¼	78	CS	Y	2.50x1.81	7	3.25x1.78	3.25x2.87	abcdg	Hol	1¼	1465	27½	38	48	2	7
45	E	4140	HG	Al	57	1.12x3.93	4	NE8640	10¼	78	CS	Y	2.50x1.81	7	3.25x1.78	3.25x2.87	abcdg	Hol	1¼	1527	27¾	38	48	2	8
45	N	.....	HG	Al	6	.625x2.00	3	1045	5¼	14	1045	Y	1.31x1.25	3	2.50x1.50	2.50x1.50	abcdg	Zen	¼	129	12¾	17⅝	18½	.....	9
45	N	.....	HG	Al	6	.625x2.00	3	1045	5¼	14	1045	N	1.31x1.25	3	2.50x1.50	2.50x1.50	abcdg	Zen	¼	165	12¾	17⅝	29	.....	10
45	Y	TS	Ch	Al	23	.875x2.75	4	2320	7¾	29	1045	Y	2.06x1.25	4	2.50x1.87	2.50x1.87	acdg	Str	1¼	710	18¾	22	37½	.....	11
45	E	TS	Ch	Al	23	.875x2.75	4	2320	7¾	29	1045	Y	2.06x1.25	4	2.50x1.87	2.50x1.75	acdg	Str	1¼	710	18¾	22	48½	.....	12
45	N	.....	HG	SS	80	1.17x4.00	4	1045	11	64	1045	N	2.50x2.50	3	2.50x4.25	2.50x3.50	abcdg	Str	1¼	600	21	29¾	37½	.....	13
45	N	.....	HG	SS	72	1.17x4.00	5	1045	11	64	1045	N	2.50x2.50	3	2.50x4.25	2.50x3.50	abcdfg	Str	1¼	950	18	33	33	.....	14
45	N	.....	HG	SS	64	1.17x3.87	4	CNS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	acdg	Str	1¼	800	25¾	33¾	49	.....	15
45	N	.....	HG	SS	64	1.17x3.87	4	AS	.....	.....	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	abcdfg	Str	1¼	800	19¾	24⅜	65	.....	16
45	N	.....	HG	SS	76	1.25x3.87	5	CNS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	acdg	Str	1½	875	25¾	33¾	49	.....	17
45	N	.....	HG	SS	70	1.25x3.87	5	AS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x4.50	abcdfg	Str	1½	900	19¾	24⅜	65	.....	18
45	N	.....	BG	SS	72	1.37x4.00	5	AS	12	80	CNS	Y	2.62x2.67	7	2.62x5.00	2.63x3.50	abcd	Str	1¾	1450	20	30	74	.....	19
45	N	.....	HG	CI	.....	1.00x2.84	4	CS	7⅝	.....	1045	N	2.00x1.31	3	2.50x1.25	2.50x1.75	abcdfg	Zen	1	500	18⅛	28⅞	30⅛	2, 3, 4	20
45	N	.....	HG	CI	.....	1.00x3.09	4	CS	7⅝	.....	1045	N	2.00x1.31	3	2.50x1.25	2.50x1.75	abcdfg	Zen	1¼	520	18⅛	28⅞	30⅛	2, 3, 4	21
45	N	.....	HG	CI	.....	1.00x	4	1045	7⅝	.....	1045	N	2.00x1.31	7	2.50x1.25	2.50x1.75	abcdfg	Zen	1	625	18⅛	28⅞	30⅛	2, 3, 4	22
45	N	.....	HG	CI	.....	1.00x3.09	4	1045	7⅝	.....	1045	N	2.00x1.31	7	2.50x1.25	2.50x1.75	abcdfg	Zen	1¼	635	18⅛	28⅞	36⅛	2, 3, 4	23
45	E	DC	HG	CI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcdg	Zen	1½	985	25¾	33½	39⅛	2, 3, 1	24
45	E	DC	HG	CI	42	1.12x3.25	4	CS	9½	42	CS	N	2.12x1.62	7	3.00x1.50	3.00x2.12	abcdg	Zen	1½	905	25¾	33½	39⅛	2, 3, 1	25
45	E	DC	HG	Al	68	1.25x3.82	4	CS	9½	56	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcdg	Zen	1½	905	25¾	30½	47⅛	2, 3, 1	26
45	E	DC	HG	CI	88	1.25x3.81	4	CS	11	66	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcdg	Zen	1½	950	25¾	33½	47⅛	2, 3, 1	27
30	E	Jad	HG	Al	88	1.25x3.81	5	AS	11	78	CS	N	2.37x1.75	7	3.00x1.75	3.00x2.50	abcdfg	Zen	1½	1195	27⅛	38½	49⅛	2, 3, 1	28
30	E	Jad	HG	CI	152	1.75x4.75	5	1040	12¼	171	1045	N	3.25x2.12	6	3.75x3.00	3.75x2.75	abcdfg	Zen	2	1925	30⅛	48¼	44⅞	1, 0	29
30	E	Jad	HG	CI	152	1.75x4.75	5	1040	12½	171	1045	N	3.25x2.12	5	3.75x3.00	3.75x2.75	abcdfg	Zen	2	2400	30⅛	48¼	44⅞	0, 1	30
30	E	Jad	HG	CI	152	1.75x4.75	5	1040	12½	171	1045	N	3.25x2.12	7	3.75x3.75	3.75x2.75	abcdfg	Zen	2	2400	48¼	58¼	58¼	0, 1	31
30	E	Jad	HG	CI	152	1.75x4.75	5	1040	12½	171	1045	.....	3.25x2.12	9	3.75x2.25	3.75x2.25	abcdefg	Zen	2½	3000	38⅛	54⅞	83⅛	0	32
45	E	DC	HG	Ala	263	2.75x5.53	5	CS	17¾	430	1045	N	4.25x3.25	7	4.50x2.68	3.75x3.48	abcdfg	Zen(2)	2	9000	48	48¼	86⅜	00, 0	33
45	E	DC	HG	Ala	263	2.75x5.53	5	CS	17¾	430	1045	N	4.25x3.25	7	4.50x2.68	3.75x3.48	abcdfg	Ens	2	9000	48	61⅛	89⅞	00, 0	34
45	E	DC	HG	Al	263	2.75x5.53	5	1035	17¾	430	1045	N	4.25x3.25	7	4.50x2.68	4.50x3.48	abcdg	Ens	2	9400	47	65¼	89⅞	00, 0	35
45	E	DC	HG	Al	263	2.75x5.53	5	1035	17¾	430	1045	N	4.33x3.25	9	4.68x2.68	4.68x2.68	abcdefg	Ens	3½	11200	106¼	47⅛	74⅛	00, 0	36
45	E	DC	HG	Al	263	2.75x5.53	5	1035	17¾	430	1045	N	4.33x3.25	9	4.68x2.66	4.68x2.66	abcdefg	Ens	3½	12000	112¾	47⅛	74⅛	00, 0	37
(h)	N	.....	HG	ACI	41.02	.865x3.15	3	DFS	6⅛	31	DFS	Y	2.31x1.44	4	2.69x1.19	2.76x1.63	acdf	R-P	1⅛	.....	¶	21⅞	30⅛	39⅛	.....	38
(h)	N	.....	HG	ACI	41.02	.865x3.15	3	DFS	6⅛	31	DFS	Y	2.31x1.44	4	2.69x1.19	2.76x1.63	acdf	Car	1⅛	612	21⅞	28⅛	39⅛	.....	39
(h)	N	.....	HG	ACI	41.02	.865x3.15	3	DFS	6⅛	31	DFS	Y	2.31x1.44	4	2.69x1.19	2.76x1.63	acdf	Car	1⅛	603	19⅝	28⅛	39⅛	.....	40
(h)	N	.....	HG	ACI	37.95	.865x3.15	3	DFS	6⅛	31	DFS	Y	2.31x1.44	4	2.69x1.19	2.76x1.63	acdf	R-P	1⅛	.....	‡‡	21⅞	30⅛	39⅛*	.....	41
30	N	.....	HG	Alt	21	.750x2.83	3	3140	6⅞	22	Ste‡	N	1.75x1.12	3	1.98x1.62	1.98x1.37	acr	Zen	1¼	456*	24⅛	21⅛	31⅞	.....	42
30	N	.....	HG	Ala	25	.875x2.92	3	1035	7	29	Ste‡	N	1.98x1.25	7	2.49x1.53	2.49x1.15	acdr	Zen	1½	626*	24⅛	24	40	.....	43
30	N	.....	HG	Alt	26	.875x2.92	3	1035	7	29	Ste‡	N	1.98x1.25	7	2.49x1.53	2.49x1.15	acdr	Zen	1½	626*	24⅛	25⅞	40	.....	44
30	N	.....	HG	Alt	26	0.75x2.92	3	1035	7	29	Ste‡	.....	1.98x1.25	7	2.49x1.53	2.49x1.15	acdr	Zen	1¼	626*	25⅛	26⅛	40	.....	45
30	N	.....	HG	Alt	26	.875x2.92	3	1035	7	29	Ste‡	N	1.98x1.25	7	2.49x1.53	2.49x1.15	acdr	Zen	1½	626*	24⅛	31⅞	40	.....	46
30	N	.....	HG	Ala	36	1.00x3.52	3	1040	8	40	Ste‡	N	1.98x1.50	7	2.49x1.74	2.49x1.15	acr	Zen	1½	850*	26⅛	25⅞	46⅛	.....	47
30	N	.....	HG	Ala	40	1.12x3.44	3	1040	8	40	Ste‡	N	1.98x1.50	7	2.49x1.74	2.49x1.15	acr	Zen	2	850*	26⅛	25⅞	46⅛	.....	48
30	N	.....	HG	Ala	40	1.12x3.44	3	1040	8	40	Ste‡	N	1.98x1.50	7	2.49x1.74	2.49x1.15	acr	Zen	2	850*	26⅛	25⅞	46⅛	.....	49
30	N	.....	HG	Alt	44	1.12x3.70	4	3140	8⅝	52	Ste‡	Y	2.24x1.50	7	2.62x2.21	2.62x1.43	acer	Zen	2	1232*	26⅛	26⅞	53⅛	.....	50
45	E	CMT	HG	Alt	22.2	.859x2.75	4	MS	7.937	30.1	DFS	Y	2.06x1.00	4	2.50x1.88	2.50x1.24	acdg	Zen	1¼	.....	22½	25¼	44⅞	4	51
45	E	CMT	HG	Alt	22.2	.859x2.75	4	MS	7.937	30.1	DFS	Y	2.06x1.00	4	2.50x1.88	2.50x1.24	acdg	Zen	1½	.....	22½	25¼	44⅞	4	52
45	E	CMT	HG	Alt	25.0	.859x2.88	4	MS	7.875	32.4	DFS	Y	2.12x1.22	4	2.50x1.88	2.50x1.24	acdg	Zen	1½	.....	26	26⅛	48⅛	4	53
45	E	CMT	HG	Alt	25.0	.859x2.88	4	MS	7.875	32.4	DFS	Y	2.12x1.22	4	2.50x1.88	2.50x1.24	acdg	Zen(2)	1½	.....	28	26⅛	48⅛	4	54
45	E	CMT	HG	Alt	22.9	.859x2.75	4	MS	9.00	32.0	DFS	Y	2.19x1.13	5	2.70x2.09	2.70x1.66	acdg	Zen	1¾	.....	25¾	28⅞	54⅛	4	55
45	E	CMT	HG	Alt	22.9	.859x2.75	4	MS	9.00	32.0	DFS	Y	2.19x1.13	5	2.70x2.09	2.70x1.66	acdg	Zen(2)	1½	.....	25¾	28⅞	54⅛	4	56
45	Bo	Sil°	HG	Alt	39.0	1.13x2.75	4	MS	8.75	52.8	DFS	Y	2.31x1.34	7	3.00x2.93	3.00x1.72	acdg	Zen(2)	1½	.....	27	30½	58⅛	4	57
45	E	Spec	Ch	CI	33.0	.859x2.75	4	MS	7.937	32.6	DFS	Y	2.06x1.00	4	2.50x1.88	2.50x1.24	acdg	Car	1½	532	19⅞	35	35⅛	4	58
45	E	Spec	Ch	Alst	22.2	.859x2.75	4	MS	7.812	30.1	DFS	Y	2.06x1.00	4	2.50x1.77	2.50x1.59	acdg	Car	1½	540	19⅛	35½	36⅛	4	59
45	E	Spec	Ch	CI	36.8	.859x2.88	4	MS	8.00	36.3	DFS	Y	2.12x1.09	4	2.50x1.56	2.50x1.59	acdg	Car	1½	550	21½	33½	37⅛	3–4	60
45	E	Spec	Ch	CI	36.8	.859x2.88	4	MS	7.88	34.6	DFS	Y	2.12x1.09	4	2.50x1.56	2.50x1.59	acdg	Car	1½	560	21½	33½	37⅛	3–4	61
45	E	Spec	Ch	Alt	22.9	.859x2.75	4	MS	9.00	32.0	DFS	Y	2.19x1.13	5	2.70x1.66	2.50x2.09	acdg	Car	1½	735	22½	37⅞	45⅛	1–3–4	62
45	Bo	Sil	HG	Ala	39.0	1.13x3.25	4	MS	8.940	52.8	DFS‡	Y	2.31x1.34	7	3.00x1.72	3.00x2.93	acdg	Car	1½	1050	24½	40	47⅛	3	63
45	Bo	Sil	HG	Ala	39.0	1.13x3.25	4	MS	8.750	52.8	DFS‡	Y	2.31x1.34	7	3.00x1.72	3.00x2.93	acdg	Car	1½	1060	24½	40	47⅛	3	64
45	Bo	Sil	HG	Ala	45.3	1.13x3.25	4	MS	8.750	52.8	DFS‡	Y	2.31x1.34	7	3.00x1.72	3.00x2.93	acdg	Car	1½	1100	24½	41½	47⅛	3	65
45	E	CI	HG	Al	153	1.49x5.37	4	3135	16	244	4140	N	3.00x3.50	3	3.25x3.81	3.25x4.50	acdfg	Zen	2	2300	31⅞	48½	57⅛	1, 0	66
45	E	CI	HG	Al	153	1.49x5.37	4	3135	16	244	4140	Y	3.00x3.50	4	3.25x3.81	3.25x4.50	acdfg	Zen(2)	1⅝	3200	39⅛	51⅝	73⅛	1, 0	67
45	E	NCI	HG	Al	176	2.00x5.75	5	3135	16	276	4140	N	4.00x5.00	7	4.50x3.75	4.50x5.50	abcdfg	Zen(4)	2	11200	51	55	95	00	68
45	E	NCI	HG	Al	176	2.00x5.75	5	3135	16	276	4140	N	4.00x5.00	5	4.50x3.75	4.50x5.50	abcdfg	Zen(2)	2	8200	51	58	72½	00	69
45	E	Spec	HG	Al	256	2.38x6.25	5	1040	16	.....	4140	.....	4.75x5.25	7	5.25x3.75	5.25x5.00	abcdfg	Zen	2	.....	51	58½	90⅛	00	70
(h)	E	SA	.....	CI	.....	.543x1.92	3	1035	5⅝	.....	DFS	N	1.50x1.02	.....	2.00x.....	2.00x1.25	.....	.....	.....	170	16	19	19	5	71
(h)	E	SA	.....	Al	.....	.543x1.92	3	1035	5⅝	.....	DFS	N	1.50x1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72
(h)	Op	SA	HG	CI	.....	.543x1.92	3	1035	5⅝	.....	DFS	N	1.50x1.00	.....	2.00x1.39	2.00x1.25	.....	Op	Op	170	16	19	19	5	73
(h)	Op	SA	HG	CI	.....	.708x2.06	3	1030	5⅝	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	265	26	22⅛	23⅛	5	74
(h)	Op	SA	HG	CI	.....	.703x2.06	3	1030	5⅝	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	290	26	22⅛	23⅛	5	75
(h)	Op	SA	HG	CI	.....	.708x2.44	3	1030	5⅝	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	265	26	22⅛	23⅛	5	76
(h)	Op	SA	HG	CI	.....	.703x2.44	3	1030	5⅝	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	290	26	22⅛	23⅛	5	77
(h)	Op	SA	HG	CI	.....	.708x2.75	3	1030	5⅝	.....	DFS	N	1.50x1.18	3	1.75x1.26	1.75x1.65	acdgt	Op	Op	265	26	22⅛	23⅛	5	78
(h)	Op	SA	HG	CI	.....	.859x2.50	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	370	26	26⅛	28⅞	4	79
(h)	Op	SA	HG	CI	.....	.859x2.50	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.88	acdgt	Op	Op	395	26	26⅛	29⅛	4 3	80

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

1952 AUTOMOTIVE

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
	Continental, cont.																			
1	G-134	Ind	4 3 1/16 x 4 3/8	32.2 2000		134.0	6.60	104 1000 (BE)			I	Op								
2	F-140	Ind	4 3 1/16 x 4 3/8	42 2400		140.0	6.40	106 1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.337
3	F-140C	C,T,Tr	4 3 1/16 x 4 3/8	52 3200		140.0		108 1600 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.281	.281	.341	.339
4	G-157	Ind	4 3 5/16 x 4 3/8	37.7 2000		157.0		120 1000 (BE)	W	In	I	Op	1.32	1.20	1.18	1.09	.312	.312	.341	.339
5	F-162	Ind	4 3 1/16 x 4 3/4	49 2400		162.0	6.40	124 1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.337
6	F-162C	C,T,Tr	4 3 1/16 x 4 3/4	58 3200		162.0		122 1600 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.337
7	H-227	Ind	4 3 7/16 x 5	54 2000		227.0	5.65	174 1000 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.439
8	H-243	Ind	4 3 5/8 x 5	58 2000		243.0	5.65	186 1000 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.437
9	H-260	Ind	4 3 7/8 x 5	60.2 2000		260.0		200 1000 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.437
10	F-186	Ind	6 3 x 4 1/2	60 2400		186.0		147 1200 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.296	.341	.337
11	F-186C	C,T,Tr	6 3 x 4 1/2	77 3500		186.0	6.70	142 1600 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.281	.341	.337
12	F-209	Ind	6 3 1/16 x 4 3/8	68 2400		209.0		165 1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.296	.296	.341	.337
13	F-209C	C,T,Tr	6 3 1/16 x 4 3/8	90 3500		209.0	6.70	160 1600 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.281	.341	.339
14	F-226	Ind	6 3 1/16 x 4 3/4	73 2400		226.0		178 1200 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.296	.341	.338
15	F-226C	C,T,Tr	6 3 1/16 x 4 3/4	99 3500		226.0	6.70	180 1600 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.281	.341	.338
16	M-271	Ind	6 3 1/2 x 4 3/4	86 2400		271.0		206 1200 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.403	.401
17	M-271C	T,B,Tr	6 3 1/2 x 4 3/4	97 3000		271.0	6.70	209 1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.402
18	M-290	Ind	6 3 1/2 x 4 3/4	92 2400		290.0		220 1200 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.401
19	M-290C	T,B,Tr	6 3 1/2 x 4 3/4	108 3000		290.0	6.70	226 1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.402
20	M-330	Ind	6 4 x 4 1/4	104 2400		330.0		250 1200 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.343	.404	.402
21	M-330C	T,B,Tr	6 4 x 4 1/4	125 3000		330.0	6.70	258 1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.402
22	B-371	Ind	6 4 1/16 x 4 3/8	110 2400		371.0	6.60	280 1000 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.359	.359	.435	.432
23	B-637T	T,B	6 4 1/16 x 4 3/8	123.5-300		371.0	6.50	284 1400 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.359	.359	.435	.432
24	T-637T	T	6 4 1/16 x 4 3/8	144 3000		371.0	6.40	297 1400 (BE)	N	In	I	Op	2.08	1.64	1.87	1.50	.460	.406	.437	.432
25	T-371	Ind	6 4 1/16 x 4 3/8	119 2400		371.0	6.36	286 1200 (BE)	N				2.08	1.64	1.87	1.50	.460	.406	.437	.432
26	T-427	Ind	6 4 1/2 x 4 3/4	140 2400		427.0	6.36	335 1000 (BE)	N				2.08	1.64	1.87	1.50	.460	.406	.437	.432
27	B-427	Ind	6 4 1/2 x 4 7/8	127 2400		427.0	6.60	322 1000 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.359	.359	.435	.437
28	B-642T	T,B,M	6 4 1/2 x 4 7/8	142 3000		427.0	6.50	328 1200 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.359	.359	.435	.432
29	T-642T	T	6 4 1/2 x 4 7/8	168 3000		427.0	6.40	342 1400 (BE)	N	In	I	Op	2.08	1.64	1.87	1.50	.460	.406	.437	.432
30	U-501	Ind	6 4 1/16 x 5 1/4	160 2400		501.0		385 1200 (BE)	N	In	L		2.14	1.87	2.00	1.63	.374	.374	.435	.432
31	U-650T	T,B,Ind	6 4 1/16 x 5 1/4	177 2600		501.0	6.20	414 1400 (BE)	N	In	I	Op	2.14	1.87	2.00	1.63	.374	.374	.435	.432
32	R-513	Ind	6 4 1/16 x 5 5/8	164 2400		513.0	5.95	392 1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.493
33	R-651T	T,B	6 4 1/16 x 5 5/8	180 2800		513.0	6.00	410 1200 (BE)	N	In	I	Op	2.14	1.89	1.81	1.75	.500	.500	.500	.495
34	R-572	Ind	6 4 3/8 x 5 5/8	182 2400		572.0	5.97	438 1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.495
35	R-657T	T,B	6 4 3/8 x 5 5/8	200 2800		572.0	6.00	450 1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.495
36	R-602	Ind	6 4 1/2 x 5 5/8	192 2400		602.0	6.00	460 1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.495
37	R-660T	T,B	6 4 1/2 x 5 5/8	212 2800		602.0	6.00	480 1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.495
38	S-749	Ind	6 5 x 5 1/4	217 2200		749.0		570 1200 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.495
39	S-674T	T	6 5 x 5 1/4	250 2800		749.0		574 1400 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.494
40	K-627I	T	6 3 1/2 x 4 3/4	115 3200		271.0	6.40	216 1400 (BE)	N	In	I	Op	1.99	1.64	1.78	1.56	.443	.406	.435	.432
41	K-629O	T	6 3 1/2 x 4 3/4	123 3200		290.0	6.40	222 1400 (BE)	N	In	I	Op	1.99	1.64	1.78	1.56	.443	.406	.435	.432
42	K-633O	T	6 4 x 4 1/2	145 3200		330.0	6.40	266 1800 (BE)	N	In	I	Op	1.99	1.64	1.78	1.56	.443	.406	.435	.432
43	S-682O	T	6 5 1/2 x 5 1/2	277 2800		820.0		628 1400 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.495
44	Dodge T-306, T-309	T	6 3 1/16 x 4 3/8	97 3600	86 3600	217.8	7.00	175 1600 (BE)	N	In	L	Sil	1.53	1.41	1.41	1.28	.379	.379	.340	.340
45	T-310	T	6 3 1/16 x 4 3/8	103 3600	89 3400	230.2	7.00	190 1200 (BE)	N	In	L	Sil	1.55	1.41	1.41	1.28	.364	.364	.340	.340
46	T-164, T-165	T	6 3 1/16 x 4 3/8	96 3600	87.5 3200	230.2	7.00	190 1200 (BE)	N	In	L	Sil	1.53	1.41	1.41	1.28	.364	.364	.340	.340
47	T-137	T	6 3 1/16 x 4 3/8	94 3200	82 3200	230.2	6.70	186 1200 (BE)	N	In	L	Sil	1.53	1.41	1.41	1.28	.364	.364	.340	.340
48	T314,TX314,TX326,T316,T328	T	6 3 1/16 x 4 1/4	109 3600	91 3200	236.6	6.60	192 1200 (BE)	N	In	L	Sil	1.72	1.50	1.56	1.37	.379	.379	.340	.340
49	T-318, TX-318, T-330, TX-330	T	6 3 1/16 x 4 1/4	114 3600	98 3200	250.6	6.60	204 1200 (BE)	N	In	L	Sil(x)	1.72	1.50	1.56	1.37	.379	.379	.340	.430
50	T-320	T	6 3 1/2 x 4 1/4	122 3200	106 3200	306.0	6.46	245 1200 (BE)	N	In	L	Sil(x)	1.94	1.75	1.78	.159	.410	.379	.371	.430
51	T-322, TX-322, T-323	T	6 3 1/2 x 5	128 3000	111 2800	331.3	6.46	270 1200 (BE)	N	In	L	Sil(x)	1.94	1.75	1.78	1.59	.410	.379	.371	.430
52	T-324, T-325	T	6 4 x 5	154 3000	140 2800	377.0	6.50	330 1200 (BE)	N	In	L	Sil(x)	1.94	1.75	1.78	1.59	.400	.375	.371	.434
53	Ford 8MB	B	6 3 1/16 x 4.4	104 3000	86 3000	254.0	6.80	212 1200 (BE)	N	In	L	Nic	1.65	1.51	1.46	1.34	.350	.350	.341	.341
54	8RT	T	6 3 1/16 x 3 1/4	106 3500	96 3400	239.0	6.80	194 2000 (BE)	N	In	L	Nic	1.51	1.51	1.34	1.34	.337	.337	.341	.341
55	8N	Tr	6 3 1/16 x 3 1/4	41 3000	33 2600	119.7	6.50	92 1300 (BE)	D	In	L	CNS	1.51	1.28	1.38	1.13	.307	.307	.341	.341
56	EAG	T	6 3 1/16 x 3.6	101 3500	91 3400	215.3	7.00	185 1500 (BE)	N	In	I	Nic	1.65	1.51	1.46	1.26	.329	.324	.342	.341
57	EAL	T	8 3 1/16 x 3.5	145 3800	128 3600	279.0	7.00	244 2000 (BE)	N	In	I	Nic	1.80	1.51	1.56	1.30	.322	.316	.342	.341
58	EAM	T	8 3.8x3.5	155 3900	141 3500	317.5	7.00	284 1800 (BE)	N	In	I	Nic	1.80	1.51	1.56	1.30	.322	.316	.342	.341
59	8MTH	T	6 3 1/16 x 4.4	112 3500	101 3223	254.0	6.80	217 1550 (BE)	N	In	L	Nic	1.65	1.51	1.46	1.34	.350	.350	.341	.341
60	8NNN-120	Ind	4 3 1/16 x 3 1/4	41 3000	33 2600	119.7	6.50	92 1300 (BE)	D	In	L	CNS	1.51	1.28	1.38	1.13	307	.307	.341	.341
61	8MNN-254	Ind	6 3.5x4.4	112-3500	101 3200	254.0	6.80	217 1550 (BE)	N	In	L	CNS	1.65	1.51	1.46	1.34	350	350	.341	.341
62	8RNN-239	Ind	8 3 1/16 x 3 1/4	106 3500	96 3400	239.0	6.80	194 2000 (BE)	N	In	L	CNS	1.51	1.51	1.34	1.34	337	337	.341	.341
63	JA-215	Ind	6 3.56x3.6	101 3500	91 3400	215.3	7.00	185 1500 (BE)	N	In	I	Nic	1.65	1.51	1.46	1.26	329	324	342	341
64	JC-279	Ind	8 3 1/16 x 3.5	145 3800	128 3600	279.0	7.00	244 2000 (BE)	N	In	I	Nic	1.80	1.51	1.56	1.30	322	316	342	341
65	JB-317	Ind	8 3.8x3.5	155 3900	141 3500	317.5	7.00	284 1800 (BE)	N	In	I	Nic	1.80	1.51	1.56	1.30	322	316	342	341
66	G.M.C. 228	T	6 3 7/16 x 3 1/2	100 3400	90 3200	228.0	6.75	182 1200 (BE)	N	In	I	Sil	1.64	1.47	1.31	1.15	395	380	.341	.340
67	248	T	6 3 7/16 x 3 1/2	114 3600	104 3400	248.5	6.75	202 1200 (BE)	N	In	I	Sil	1.64	1.47	1.31	1.15	395	380	.341	.340
68	270	T	6 3 1/2 x 4	120 3600	105 3200	269.5	6.75	222 1400 (BE)	N	In	I	2112	1.96	1.41	1.56	1.15	395	380	.341	.340
69	360	T	6 4 1/16 x 4 1/2	155 3200	140 3000	360.8	6.50	297 1000 (BE)	N	Se	I	Sil	2.00	1.56	1.63	1.38	403	384	372	434
70	426	T	6 4 1/2 x 5	177 3200	154 2800	425.6	6.50	342 1200 (BE)	N	Se	I	Sil	2.09	1.69	1.75	1.50	462	461	372	434
71	503	T,B	6 4 1/2 x 5 1/2	200 3000	181 2800	502.7	6.50	422 1200 (BE)	N	Se	I	Sil	2.09	1.69	1.75	1.50	462	461	372	434
72	270	B	6 3 1/2 x 4	107 3200	89 2800	269.5	6.75	212 1000 (BE)	N	In	I	2112	1.64	1.43	1.31	1.15	385	380	341	340
73	Gray Marine Light Four-69	M	4 2 1/2 x 3 1/2		16 1800	69.0	6.07	476 1400 (EA)	N	In	L	Sil	1.20	1.02	1.06	.875	.284	.284	.314	.313
74	Sea Scout-91	M	4 2 5/8 x 3 1/2		25 2000	91.0	7.45		N	In	L	Sil	1.20	1.02	1.06	.875	.284	.284	.314	.313
75	Lugger 4-112	M	4 3 1/16 x 3 1/2		30 2000	112.0	6.00		N	In	L	Sil	1.20	1.02	1.06	.800	.284	.284	.313	.313
76	Lugger 4-162	M	4 3 1/16 x 4 3/8		42 1800	162.0	6.50		N	In	L	Sil	1.51	1.33	1.37	1.18	.331	.331	.340	.361
77	Lugger 6-226	M	6 3 1/16 x 4 3/8		73 2400	226.0	6.75		N	In	L	Sil	1.51	1.33	1.37	1.18	.284	.284	.340	.340
78	Lugger 6-244	M	6 3 1/16 x 4 1/2		83 2400	244.0	6.22		N	In	L	Sil	1.70	1.42	1.56	1.31	.311	.311	.339	.338
79	Lugger 6-330	M	6 4 x 4 1/4		96 2400	330.0	6.00		N	In	L	Sil	1.76	1.51	1.62	1.37	.339	.339	.404	.401
80	Express 4-140	M	4 3 1/16 x 4 3/8		55 3000	140.0	6.20		N	In	L	Sil	1.51	1.33			.331	.330	.340	.339
81	Express 4-162	M	4 3 1/16 x 4 3/8		63 3000	162.0	7.00		N	In	L	Sil	1.51	1.33	1.37	1.18	.331	.331	.340	.330
82	Express 6-226	M	6 3 1/16 x 4 3/8		93 3200	226.0	6.75		N	In	L	Sil	1.51	1.33	1.37	1.18	.311	.311	.340	.342
83	Express 6-244	M	6 3 1/16 x 4 1/2		102 3200	244.0	7.69		N	In	L	Sil	1.70	1.42	1.56	1.31	.357	.357	.339	.332
84	Express 6-330	M	6 4 x 4 1/4		124 3200	330.0	7.25		N	In	L	Sil	1.76	1.51	1.62	1.37	.354	.354	.404	.401
85	Express 6-427	M	6 4 1/2 x 4 7/8		150 2800	427.0	6.73		N	In	L	Sil	1.69	1.64	1.75	1.50	.359	.359	.434	.438
86	Super 6-330	M	6 4 x 4 1/4		155 3400	330.0	7.75		N	In	L	Sil(x)	1.89	1.59	1.62	1.37	.354	.354	.404	.431
87	Super 6-427	M	6 4 1/2 x 4 7/8		180 3200	427.0	7.50		N	In	L	Sil(x)	2.16	1.77	2.02	1.63	.359	.359	.434	.431

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

GASOLINE ENGINES—*continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT								CARBURETOR			OVERALL DIMENSIONS (In.)				
Seats													Crank-Pin	MAIN BEARINGS												
Angle (Deg.)	Inserts Used	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing (S.A.E. Nos.)	Line Number
	E	SA		Al		.859x2.68	4	1035	7		DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	370	26	28½	29½	4	1
(h)	Op	SA	HG	CI		.859x2.68	4	1030	7		DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	395	26	28½	29½	4	2
(h)	Op	SA	HG	Al		1.12x2.75	4	1035	7		DFS	N	2.06x	3	2.37x1.53	2.37x1.68		Op	Op	475	16½	19½	29½	4, 3	3
(h)	Op	SA	HG	Al		.859x2.87	4	1030	7		DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	370	26	28½	29½	4	4
(h)	Op	SA	HG	Al		.859x2.87	4	1030	7		DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	395	26	28½	29½	4, 3	5
(h)	Op	SA	HG	Als		1.25x3.31	4	1035	9½		DFS	N	2.50x1.18	3	2.87x1.81	2.87x2.06	acdg	Op	Op	645	19¾	33½	30½		6
(h)	Op	SA	HG	Al		1.25x3.18	4	1035	9½		DFS	N	2.50x1.18	3	2.87x1.81	2.87x2.06	acdg	Op	Op	654	19¾	33½	30½		7
(h)	E	SA		Al		1.25x3.18	4	1035	9½		DFS	N	2.50x1.18	3	2.87x1.81	2.87x2.06	acdg			654	19¾	33½	30½		8
(h)	Op	SA	HG	Al		.859x2.50	4	1030	7		DFS	N	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	505	26	27¼	36½	4	9
(h)	Op	SA	HG	Al		.859x2.50	4	1030	7		DFS	N	1.93x1.31	4	2.25x1.81	2.25x1.81	acdgt	Op	Op	515	26	27¼	36½	4, 3	10
(h)	Op	SA	HG	Al		.859x2.68	4	1030	7		DFS	N	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	505	26	27¼	36½	4, 3	11
(h)	Op	SA	HG	Al		.859x2.68	4	1030	7		DFS	N	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	505	26	27¼	36½	4	12
(h)	Op	SA	HG	Al		.859x2.68	4	1030	7		DFS	Y	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	515	26	27¼	36½	4, 3	13
(h)	Op	SA	HG	Al		.859x2.81	4	1030	7		DFS	Y	2.06x1.31	4	2.37x1.28	2.37x1.73	acdgt	Op	Op	510	26	27¼	36½	4	14
(h)	Op	SA	HG	CI		.859x2.81	4	1030	7		DFS	Y	2.06x1.31	4	2.37x1.28	2.37x1.81	acdgt	Op	Op	515	26	27¼	36½	4, 3	15
(h)	E		HG	Al		1.10x3.06	5	1035	8⅝		DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	720	25½	29½	42	3	16
(h)	E	SA	HG	Al		1.10x3.06	5	1035	8⅝		DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	755	25¼	29½	42	4, 3	17
(h)	E	SA	HG	Al		1.10x3.18	5	1035	8⅝		DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	720	25¾	29½	42	3	18
(h)	E	SA	HG	Al		1.10x3.18	5	1035	8⅝		DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	755	25¾	29½	42	4, 3	19
(h)	E	SA	HG	Al		1.10x3.43	5	1035	8⅝		DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	720	25¾	29½	42	3	20
(h)	E	SA	HG	Al		1.10x3.43	5	1035	8⅝		DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	755	25¾	29½	42	4, 3	21
(h)	E	St	HG	Al		1.25x3.43	5	1035	8⅝		DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.62	acdgt	Op	Op	870	26	29¼	32½	2	22
(h)	E	St	HG	Al		1.25x3.43	5	1035	8⅝		DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdgt	Op	Op	870	26	29¼	43½	3, 2	23
(n)	E	St	HG	Al		1.25x3.37	5	1035	8⅝		DFS‡	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg	Op	Op	1070	24½	31¾	45½		24
(n)	E	SA		Al		1.25x3.37	5	1035	8⅝		DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg			1070	24½	31¾	45½		25
(n)	E	SA		Al		1.25x3.62	5	1035	8⅝		DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg			1075	24½	31¾	45½		26
(n)	E		HG	Al		1.25x3.43	5	1035	8⅝		DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.62	acdfgt	Op	Op	875	26	29¼	43½	2	27
(n)	E	St	HG	Al		1.25x3.43	5	1035	8⅝		DFS‡	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdfgt	Op	Op	875	26	29¼	43½	3, 2	28
(n)	E	St	HG	Al		1.25x3.62	5	1035	8⅝		DFS‡	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg	Op	Op	1075	24½	31¾	45½		29
(h)	E	SA		Al		1.50x3.72	5	1035	10½		DFS	Y		7	2.75x1.75	2.75x2.81	acfg				25½	37½	47⅛	2	30
(h)	E	St	HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y		7	2.75x1.75	2.75x2.81	acfg	Op	Op		28½	37½	47⅛	2	31
(h)	E		HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfgt	Op	Op	1550				1	32
(h)	E	St	HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acefg	Op	Op	1525				2	33
(h)	E		HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfgt	Op	Op	1550				1	34
(h)	E	St	HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfg	Op	Op	1525				2	35
(h)	E	St	HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfg	Op	Op	1550				1	36
(h)	E	St	HG	Al		1.50x3.72	5	1035	10½		DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfgt	Op	Op	1525				2	37
(h)	E	St		Al		1.75x4.53	5	8640	10½		DFS‡	Y		7	3.75x1.12	3.75x3.62	acdg	Op	Op		31½	47⅞	57⅛	0	38
(h)	E	St		Al		1.75x4.53	5	8640	10½		DFS‡	Y		7	3.75x1.87	3.75x3.12	acdg	Op	Op	1865	31½	47⅞	57⅛	1	39
(n)	E	St	HG	Al		1.10x3.06	5	1035	8⅝		DFS‡	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdfg	Op	Op					3	40
(n)	E	St	HG	Al		1.10x3.18	5	1035	8⅝		DFS‡	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdfg	Op	Op					3	41
(n)	E	St	HG	Al		1.10x3.43	5	1035	8⅝		DFS‡	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdfg	Op	Op					3	42
(h)	E	St	HG	Al		1.75x4.53	5	8640	10½		DFS‡	Y		7	3.75x1.87	3.75x3.12	acdg	Op	Op						43
45	E	SA	Ch	Al		.86x2.75	4	MS	7⅛		CS	Y	2.06x1.00	4	2.50x1.17	2.50x1.59	acdg	BB	1½	500	23¾	35⅛	35¼		44
45	E	SA	Ch	Al		.86x2.75	4	MS	7⅛		CS	Y	2.06x1.00	4	2.50x1.17	2.50x1.59	acdg	Str	1½	525	23¾	35⅛	35¼		45
45	E	SA	Ch	Al		.86x2.75	4	MS	7⅛		CS	Y	2.06x1.00	4	2.50x1.17	2.50x1.59	acdg	Str	1½	540	23¾	35⅛	35¼		46
45	E	SA	Ch	Al		.86x2.75	4	MS	7⅛		CS	Y	2.06x1.00	4	2.50x1.17	2.50x1.59	acdg	Car	1½	570	24⅞	37¾	37⅝		47
45	E	SA	Ch	Al		.86x2.87	4	MS	8		CS	Y	2.12x1.09	4	2.50x1.15	2.50x1.59	acdg	Car	1½	575	23¾	35¼	39⅛		48
45	E	SA	Ch	Al		.86x2.87	4	MS	7⅞		CS	Y	2.12x1.09	4	2.50x1.15	2.50x1.59	acdg	Car	1½	590	23¾	35¼	39⅛		49
45	Be	Sil	HG	Al		1.12x3.25	4	MS	8⅛		CS	Y	2.31x1.34	7	3.00x1.71	3.00x2.93	acdg	Car	1½	850	28⅞	38⅛	48⅛		50
45	Be	Sil	HG	Al		1.12x3.25	4	MS	8⅛		CS	Y	2.31x1.34	7	3.00x1.71	3.00x2.93	acdg	Car	1½	850	28⅞	38⅛	48⅛		51
45	Be	Sil	HG	Al		1.12x3.47	4	MS	8¾		CS	Y	2.31x1.34	7	3.00x1.72	3.00x1.93	acdg	Car	1½	1050	29	38¼	42⅛		52
45	E	MCS	HG	Alst	26	.850x2.91	3	MS	8.25	31	CAS	Y	2.30x1.40	4	2.87x1.33	2.87x1.59	acd	Hol	1¼	539	28	31¼	35⅝		53
45	E	MCS	HG	Alst	19	.750x2.84	4	MS	7.0	19	CAS	Y	2.14x1.75	3	2.50x1.67	2.50x2.25	acd	Hol	1	501	23	36½	32⅝		54
45	E	MCS	HG	Alst	19	.75x2.84	3	MS	7.0	21	CAS	Y	2.09x1.3	3	2.49x1.78	2.49x1.8	acdg	MaS	⅝	349	21	26	29.5		55
45	N	N	Ch	Alst	26	.912x3.02	3	MS	6.26	30.5	NDI	Y	2.30x1.25	4	2.50x1.30	2.50x1.64	acdf	Hol	1¼	451	23.3	33.4	34.4		56
45	E	MCS	Ch	Alst	32	.927x3.02	3	MS	7.06	28.4	NDI	Y	2.25x1.87	5	2.62x1.79	2.62x2.00	acdf	Hol	1¼	692	31.5	35.0	31.7		57
45	E	MCS	Ch	Alst	32	.912x3.17	3	MS	7.06	28.4	NDI	Y	2.25x1.87	5	2.62x1.79	2.62x2.00	acdf	Hol	1¼	692	31.5	35.0	31.7		58
45	E	MCS	HG	Alst	26	.850x2.91	3	MS	8.25	31	CAS	Y	2.30x1.40	4	2.87x1.33	2.87x1.59	acd	Hol	1¼	523	24½	37	39⅝		59
45	E	MCS	HG	Alst	16	.750x2.85	3	MS	7	20.6	CAS	Y	2.09x1.30	3	2.49x1.76	2.49x1.80	acdg	MaS	⅝	340	20.6	26.2	29.4	5	60
45	E	MCS	HG	Alst	20	.850x2.92	3	MS	8⅛	27	CAS	Y	2.30x1.40	4	2.87x1.33	2.87x1.59	acdg	Hol	1¼	565	21	30.2	37.8	3, 4	61
45	E	MCS	HG	Alst	19	.750x2.85	4	MS	7	19	CAS	Y	2.13x1.75	3	2.50x1.67	2.50x2.25	acdg	Hol‡	1	504	22.9	30.6	32.8	3, 4	62
45	N	N	Ch	Alst	26	.912x3.02	3	MS	6.26	30.5	NDI	Y	2.30x1.25	4	2.50x1.30	2.50x1.64	acdf	Hol	1¼	451	23.3	33.4	34.4		63
45	E	MCS	Ch	Alst	32	.927x3.02	3	MS	7.06	28.4	NDI	Y	2.25x1.87	5	2.62x1.79	2.62x2.00	acdf	Hol‡	1¼	692	31.5	35.0	31.7		64
45	E	MCS	Ch	Alst	32	.912x3.17	3	MS	7.06	28.4	NDI	Y	2.25x1.87	5	2.62x1.79	2.62x2.00	acdf	Hol‡	1¼	692	31.5	35.0	31.7		65
30	N		HG	Al	32	.990x3.08	4	1141	7	35	1046	Y	2.31x1.44	4	2.69x1.44	2.78x1.73	abcdfg	Zen	1½		21½	30¾	41		66
30	N		HG	Al	39	.990x3.25	4	1141	7	35	1046	Y	2.31x1.44	4	2.69x1.44	2.78x1.73	abcdfg	Zen	1½		26½	33	41		67
(h)	E		HG	Al	41	.990x3.25	4	1141	7	35	1046	Y	2.31x1.44	4	2.69x1.44	2.73x1.73	abcdfg	Zen	1½		26½	35	41		68
(h)	E	EA-5	HG	Al	50	1.12x3.63	4	1340	9⅝	51	5046	Y	2.37x1.62	7	2.75x2.26	2.75x2.37	abcdfg	Hol	1½2		31½	38½	47½	3	69
(h)	E	Eat	HG	Al	62	1.25x3.71	4	1340	10⅜	67	5046	Y	2.62x1.75	7	3.00x2.37	3.00x2.50	abcdfg	Zen	1½2		39½	41	49⅝	3	70
(h)	E	Eat	HG	Al	67	1.25x3.96	4	1340	10⅜	67	5046	Y	2.62x1.75	7	3.00x2.37	3.00x2.50	abcdfg	Zen	1½2		39½	41	49⅝	3	71
30	E	EA-5	HG	Al	41	.990x3.25	4	1141	7	35	1046	Y	2.31x1.44	4	2.69x1.44	2.78x1.73	abcdfg	Zen	1½2		28¼	34⅞	43⅞		72
(h)	N		HG	CI		.708x2.06	3	1030	5¾		1045	N	1.43x1.06	3	1.75x8.75	1.75x1.32	acd	Zen	1	330	17¾	19⅛	29¼		73
(h)	N		HG	Al		.703x2.43	3	1030	5¾		1045	N	1.5x1.18	3	1.75x1.78	1.75x1.37	acdr	Zen	1	390	17¾	19⅛	29¼		74
(h)	N		HG	Al		.708x2.75	3	1030	5¾		1045	Y	1.50x1.00	3	1.75x1.43	1.75x1.21	acdr	Zen	1	410	17¾	19⅛	29¼		75
(h)	N		HG	Al		.858x2.69	4	CS	7		1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	acdr	Zen	1¼	565	19½	22½	35¼		76
(k)	N		HG	CI		.859x2.81	4	CS	7		1045	Y	2.06x1.31	4	2.25x1.73	2.25x1.28	acdr	Zen	1½	695	19¾	22½	42⅛		77
45	N		HG	Al		.859x2.87	4	CS	8⅛		1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½	825	23⅛	23¾	43⅛		78
(k)	N		HG	Al		1.10x3.43	5	CS	8⅝		1045	Y	2.25x1.56	7	2.62x2.15	2.62x1.56	acdr	Str	1⅝	1070	24½	25⅛	49⅜		79
(h)	N		HG	Al		.859x2.87	4	1035	7		1045		2.12x1.37	3	2.37x2.06	2.37x1.43	acdr	Zen	1¼	510	21⅛	22½	34⅛		80
(h)	N		HG	Al		.859x2.68	4	CS	7		1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	acdr	Zen	1¼	565	19½	22½	35⅛		81
(k)	N		HG	Al		.959x2.81	4	CS	7		1045	Y	2.06x1.31	4	2.25x1.73	2.25x1.28	acdr	Zen	1½	695	19¾	22½	42⅛		82
45	N		HG	Al		.859x2.87	4	CS	8⅛		1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½	825	21⅛	23¾	43⅛		83
(k)	N		HG	Al		1.10x3.43	5	CS	8⅝		1045	Y	2.25x1.56	7	2.62x2.15	2.62x1.56	acdr	Str	2	1070	24½	25⅛	49⅜		84
(k)			HG	Al		1.25x3.63	5	CS	8⅝		1045	Y	2.5x1.68	7	2.87x2.71	2.87x1.65	acdr	Str	2	1250	25⅛	25⅛	53⅛		85
(k)	N		HG	Al		1.10x3.43	5	CS	8⅝		1045	Y	2.25x1.56	7	2.62x2.15	2.62x1.56	acdr	Str	1⅝	1025	24½	25⅛	49⅜		86
(k)	N		HG	Al		1.25x3.63	5	CS	8⅝		1045	Y	2.5x1.68	7	2.87x2.71	2.87x1.65	acdr	Str	2	1200	25⅛	25⅛	51⅛		87

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

1952 AUTOMOTIVE

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
	Gray Marine, Cont.																			
1	Phantom 4-45	M	4-2 7/16x3 1/2	.....	45-3600	91.0	7.45	.....	N	In	L	SII	1.20	1.02	1.06	.875	.284	.284	.314	.314
2	Phantom 4-62	M	4-3 1/16x4 1/2	.....	62-3600	140.0	7.05	.....	N	In	L	SII	1.51	1.33	.....	.....	.330	.330	.340	.339
3	Phantom 4-75	M	4-3 1/16x4 1/2	.....	75-3600	162.0	8.00	.....	N	In	L	SII	1.64	1.45	1.37	1.16	.331	.331	.340	.313
4	Phantom 6-112	M	6-3 1/16x4 1/2	.....	115-3600	226.0	8.00	.....	N	In	L	SII	1.51	1.33	1.37	1.16	.311	.311	.340	.339
5	Phantom 6-125	M	6-3 1/16x4 1/2	.....	130-3600	244.0	8.00	.....	N	In	L	SII	1.70	1.42	1.56	1.31	.311	.311	.339	.343
6	Fireball 4-50	M	4-2 7/16x3 1/2	.....	50-4000	91.0	7.45	.....	N	In	L	SII	1.20	1.02	1.06	.875	.284	.284	.314	.333
7	Fireball 4-90	M	4-3 1/16x4 1/2	.....	90-4000	162.0	8.00	.....	N	In	L	SII	1.64	1.45	1.16	1.07	.331	.331	.340	.316
8	Fireball 6-140	M	6-3 1/16x4 1/2	.....	140-4000	244.0	9.00	.....	N	In	L	SII	1.70	1.58	1.43	1.31	.360	.360	.339	.339
9	Fireball 6-160	M	6-3 1/16x4 1/2	.....	160-4000	244.0	9.71	.....	N	In	L	SII	1.70	1.58	1.43	1.31	.360	.360	.339	.371
10	Racing 91	M	4-2 7/16x3 1/2	.....	65-4600	91.0	9.84	.....	N	In	L	SII	1.33	1.23	1.16	1.07	.284	.284	.313	.313
11	Racing 244	M	6-3 1/16x4 5/8	.....	190-5000	244.0	9.14	.....	N	In	L	SII	1.70	1.58	1.56	1.43	.360	.360	.339	.371
12	100	M	6-3 1/16x4 5/8	.....	100-3400	226.0	8.00	.....	N	In	L	SII	1.51	1.33	1.37	1.16	.311	.311	.340	.339
13	115	M	6-3 1/16x4 5/8	.....	115-3800	244.0	7.70	.....	N	In	L	SII	1.70	1.42	1.56	1.31	.311	.311	.339	.343
14	150	M	6-4x4 5/8	.....	150-3400	330.0	7.75	.....	N	In	L	SII(x)	1.89	1.58	1.62	1.37	.354	.354	.403	.401
15	Hall-Scott (m) (H) 130	T,B	6-4 1/16x5	157-2900	136-2800	477.1	6.00	375-1700 (BE)	W	In	I	2112	2.15	2.02	2.00	1.75	.495	.495	.435	.434
16	(H) 504	T,B	6-4 5/8x5	180-2500	162-2500	504.0	6.00	425-1600 (BE)	W	In	I	2112	2.15	2.02	2.00	1.75	.495	.495	.435	.434
17	(m) (H) 180-1-3-5	B,T	6-5x6	206-2200	188-2100	707.0	6.00	540-1500 (BE)	W	In	I	2112	2.63	2.38	2.38	2.02	.482	.482	.497	.528
18	(m) (H) 190-2-3-5	B,T	6-5 1/4x6	220-2200	200-2200	779.0	5.60	625-1300 (BE)	W	In	I	2112	2.63	2.38	2.38	2.02	.482	.482	.497	.528
19	(H) 190-1	B,T	6-5 1/4x6	235-2200	215-2200	779.0	8.00	640-1400 (BE)	W	In	I	2112	2.63	2.38	2.38	2.02	.482	.482	.497	.528
20	470	T,Ind	6-5 1/4x6	244-2200	216-2200	855.3	6.25	660-1600 (BE)	N	Se	I	2112	2.63	2.38	2.38	2.02	.547	.547	.497	.528
21	(m) 480	T,Ind	6-5 5/8x6	274-2200	240-2200	934.8	5.70	800-1200 (BE)	N	Se	I	2112	2.63	2.38	2.38	2.02	.547	.547	.497	.528
22	(m) 400	T,Ind	6-5 5/8x7	296-2000	252-2000	1094.0	5.70	930-1300 (BE)	N	Se	I	2112	2.63	2.38	2.38	2.02	.547	.547	.497	.528
23	Invader 186-87	M	6-5 1/4x7	.....	252-2100	997.8	4.90	.....	N	In	I	2112	2.87	2.87	2.62	2.62	.482	.482	.497	.528
24	Invader 168-69	M	6-5 1/4x7	.....	275-2100	997.8	4.90	.....	N	In	I	2112	2.87	2.87	2.62	2.62	.482	.482	.497	.528
25	Defender 2286-87	M	12-5 1/4x7	.....	605-2100	2181.0	6.50	.....	N	Se	I	2112	2.87	2.75	2.62	2.50	.482	.482	.497	.528
26	Defender 2268-69	M,Ind	12-5 1/4x7	.....	630-2100	2181.0	6.50	.....	N	Se	I	2112	2.87	2.75	2.62	2.50	.482	.482	.497	.528
27	401	T,Ind	6-5 1/4x7	332-2200	308-2200	1090.0	6.40	960-1200 (BE)	N	Se	I	2112	2.62	2.37	2.38	2.02	.547	.547	.497	.528
28	471	T,Ind	6-5 1/4x8	260-2400	244-2400	855.0	6.00	660-1200 (BE)	N	Se	I	2112	2.62	2.37	2.38	2.02	.547	.547	.497	.528
29	481	T,Ind	6-5 3/4x8	295-2400	270-2400	935.0	6.40	800-1400 (BE)	N	Se	I	2112	2.62	2.37	2.38	2.02	.547	.547	.497	.528
30	Hercules BXB	M,Tr,Ind	2-2 7/16x3	10-2300	8.5-2300	39.0	6.00	28-1200 (BE)	N	In	L	Aus	1.30	1.05	1.12	.875	.200	.200	.248	.248
31	NXA	M,Tr,Ind	2-3x4	13-2000	11-2000	56.5	5.50	39-1100 (BE)	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
32	NXB	M,Tr,Ind	2-3 1/4x4	16-2000	13-2000	66.3	5.50	46-1100 (BE)	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
33	ZXA	M,T,Tr,Ind	4-2 1/16x3	23-3800	19-3800	58.8	6.10	37-1800 (BE)	N	In	L	Aus	1.30	1.05	1.12	.875	.200	.200	.248	.248
34	ZXB	T,Tr,M,Ind	4-2 5/16x3	25-3800	21-3800	64.9	6.10	39-1800 (BE)	N	In	L	Aus	1.30	1.05	1.12	.875	.200	.200	.248	.248
35	IXA	T,Tr,M,Ind	4-3x4	40-3200	34-3200	113.0	5.50	79-2000 (BE)	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
36	IXB	T,Tr,M,Ind	4-3 1/16x4	47-3200	40-3200	133.0	5.50	92-1600 (BE)	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
37	IXLB	T,Tr,M,Ind	4-3 1/4x4 1/2	49-3200	42-3200	141.0	6.50	96-1800 (BE)	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
38	JX4E	T,Tr,M,Ind	4-3 1/16x4 1/2	52-2900	44-2900	164.0	6.70	121-1400 (BE)	N	In	L	2112N	1.68	1.56	1.50	1.37	.356	.356	.373	.373
39	JX4C	T,Tr,M,Ind	4-3 1/4x4 1/2	60-2900	51-2900	188.0	6.70	139-1400 (BE)	N	In	L	2112N	1.68	1.56	1.50	1.37	.356	.356	.373	.373
40	JX4D	T,Tr,M,Ind	4-4x4 1/2	68-2900	57-2900	214.0	6.70	157-1400 (BE)	N	In	L	2112N	1.68	1.56	1.50	1.37	.356	.356	.373	.373
41	QXA	T,B,Tr,M,Ind	6-3 1/16x4 1/2	64-3200	54.5-3200	190.0	6.50	132-1300 (BE)	N	In	L	Aus	1.48	1.39	1.31	1.12	.311	.311	.310	.310
42	QXB	T,B,Tr,M,Ind	6-3 1/4x4 1/2	69-3200	59-3200	205.0	6.50	142-1400 (BE)	N	In	L	Aus	1.48	1.39	1.31	1.12	.311	.311	.310	.310
43	QXC	T,B,Tr,M,Ind	6-3 5/16x4 1/2	77-3200	66-3200	221.0	6.50	159-1400 (BE)	N	In	L	Aus	1.48	1.39	1.50	1.25	.311	.311	.310	.310
44	QXD	T,B,Tr,M,Ind	6-3 1/2x4 1/2	78.4-3200	70-3200	230.0	6.50	167-1400 (BE)	N	I	L	2112	1.61	1.40	1.50	1.25	.311	.311	.310	.310
45	QXLD	T,B,Tr,M,Ind	6-3 1/4x4 1/2	91-3200	77-3200	236.7	6.50	169-1400 (BE)	N	In	L	Aus	1.61	1.39	1.50	1.25	.311	.311	.310	.310
46	JXE	T,B,Tr,M,Ind	6-3 1/4x4 1/2	91-3200	77-3200	245.0	6.50	184-1400 (BE)	N	In	L	Aus	1.68	1.56	1.50	1.37	.356	.356	.373	.373
47	JYB	T,B,Tr,M,Ind	6-3 5/16x4 1/2	98-3200	83-3200	263.0	6.50	190-1400 (BE)	N	In	L	Aus	1.68	1.56	1.50	1.37	.356	.356	.373	.373
48	JXC	T,B,Tr,M,Ind	6-3 3/4x4 1/2	103-3200	87.5-3200	282.0	6.50	207-1400 (BE)	N	In	L	Aus	1.68	1.56	1.50	1.37	.356	.356	.373	.373
49	JXD	T,B,Tr,M,Ind	6-4x4 1/2	113-3000	96-3000	320.0	6.50	240-1200 (BE)	N	In	L	Aus	1.68	1.56	1.50	1.37	.359	.359	.373	.373
50	JXLD	T,B,Tr,M,Ind	6-4x4 1/2	131-3200	111-3200	339.0	6.90	272-1400 (BE)	N	In	L	Aus	1.83	1.67	1.72	1.50	.356	.356	.373	.373
51	WXC-3	T,B,Tr,M,Ind	6-4 1/4x4 1/2	131-2600	111-2600	383.0	6.60	296-1400 (BE)	N	In	L	Aus	1.87	1.75	1.62	1.56	.388	.388	.373	.373
52	WXLC	T,B,Tr,M,Ind	6-4x4 1/2	123-2600	104-2600	358.0	6.60	275-1200 (BE)	N	In	L	Aus	1.87	1.75	1.68	1.62	.388	.388	.373	.373
53	WXLC-3	T,B,Tr,M,Ind	6-4 1/4x4 1/2	139-2600	118-2600	404.0	6.60	312-1300 (BE)	N	In	L	Aus	1.87	1.75	1.68	1.62	.388	.388	.373	.373
54	TDXB	T,B,Tr,M,Ind	6-4 5/16x5 1/2	160-2600	136-2600	474.0	6.50	386-1400 (BE)	N	In	L	2112	2.06	2.00	1.87	1.75	.388	.388	.373	.437
55	TDXC	T,B,Tr,M,Ind	6-4 1/2x5 1/2	170-2600	146-2600	501.0	6.50	389-1400 (BE)	N	I	L	2112	2.06	2.00	1.87	1.75	.388	.388	.373	.437
56	RXB	T,B,Tr,M,Ind	6-4 1/2x5 1/2	137-2400	116-2400	501.0	6.50	350-1200 (BE)	N	In	L	Aus	2.00	2.00	1.75	1.75	.388	.388	.373	.373
57	RXC	T,B,Tr,M,Ind	6-4 5/8x5 1/2	143-2400	121-2400	529.2	6.50	372-1200 (BE)	N	In	L	Aus	2.00	2.00	1.75	1.75	.388	.388	.373	.373
58	RXLC	T,B,Tr,M,Ind	6-4 3/4x5 1/2	146-2400	124-2400	529.2	6.20	408-1100 (BE)	N	In	L	Aus	2.00	2.00	1.81	1.75	.388	.388	.373	.373
59	RXLD	T,B,Tr,M,Ind	6-4 3/4x5 1/2	154-2400	131-2400	558.0	6.50	430-1100 (BE)	N	In	L	Aus	2.00	2.00	1.81	1.75	.388	.388	.373	.373
60	RXLDH	T,B,Tr,M,Ind	6-4 3/4x5 1/2	180-2600	153-2600	558.0	6.50	443-1400 (BE)	N	In	L	2112	2.06	2.00	1.87	1.75	.442	.442	.435	.438
61	HXB	T,B,Tr,M,Ind	6-5x6	159-2000	135-2000	707.0	5.75	502- 900 (BE)	N	Se	L	Aus	2.43	2.31	2.12	2.00	.468	.468	.498	.490
62	HXC	T,B,Tr,M,Ind	6-5 1/4x6	175-2000	149-2000	779.0	5.75	555- 900 (BE)	N	Se	L	Aus	2.43	2.31	2.12	2.00	.468	.468	.498	.490
63	HXD	T,B,Tr,M,Ind	6-5 1/2x6	202-2000	172-2000	855.0	5.75	645- 900 (BE)	N	Se	L	Aus	2.43	2.31	2.12	2.00	.468	.468	.498	.490
64	HXE	T,B,Tr,M,Ind	6-5 3/4x6	227-2000	193-2000	935.0	5.20	750-1000 (BE)	N	Se	L	Aus	2.43	2.31	2.12	2.00	.468	.468	.498	.498
65	International U-1	Tr,Ind	4-2 5/16x2 5/8	17.0-2500	16.5-2500	59.5	7.00	38.5-1700 (EA)	N	In	L	CNS	1.10	.91	.98	.79	.222	.222	.310	.310
66	U-2A	Tr,Ind	4-3x4	25.8-1800	24-1800	113.1	6.00	82-1200 (EA)	W	In	I	CNS	1.34	1.16	1.19	1.00	.281	.281	.341	.341
67	U-4	Tr,Ind	4-3 1/8x4 1/2	33.5-1800	31.5-1800	152.1	5.90	108-1250 (EA)	D	In	I	CNS	1.50	1.38	1.34	1.21	.343	.343	.341	.341
68	U-6	Tr,Ind	4-3 7/16x5 1/2	43-1500	41-1500	247.7	5.65	162- 900 (EA)	D	In	I	CNS	1.81	1.66	1.59	1.43	.438	.438	.372	.372
69	U-9	Tr,Ind	4-4.4x5 1/2	56.3-1500	55-1500	334.4	5.40	229- 950 (EA)	D	In	I	CNS	2.10	1.91	1.87	1.68	.469	.469	.402	.402
70	SD-220	T	6-3 1/16x3 1/2	100-3600	90-3600	220.5	6.50	167-1200 (EA)	N	In	I	2112	1.68	1.52	1.50	1.31	.398	.398	.372	.371
71	SD-240	T	6-3 1/16x4.02	108-3600	93-3400	240.3	6.50	186-1100 (EA)	N	In	I	2112	1.66	1.52	1.50	1.31	.398	.398	.372	.371
72	BD-269	T	6-3 1/16x4 1/2	100-3000	88.6-2800	269.1	6.30	216-1000 (EA)	D	In	I	SII	1.66	1.47	1.50	1.31	.332	.332	.342	.341
73	RD-372	T	6-4 5/16x4 1/2	144-3200	128-2850	372.1	6.30	280-1000 (EA)	D	In	I	XCR	2.25	1.55	2.00	1.38	.450	.450	.434	.434
74	RD-406	T	6-4 5/8x4 1/2	154-3200	138-2750	405.9	6.30	314-1000 (EA)	D	In	I	XCR	2.25	1.55	2.00	1.38	.450	.450	.434	.434
75	RD-450	T	6-4 3/4x5	162-3000	146-2600	451.0	6.20	354-1000 (EA)	D	In	I	XCR	2.25	1.55	2.00	1.38	.450	.450	.434	.434
76	Kermath Cub	M	4-2 3/4x3	.....	25-3400	53.0	6.00	40-1700 (EA)	N	In	L	SII	1.25	1.12	1.12	.875	.250	.250	.310	.310
77	Jeep	M	4-3 1/16x4 1/2	.....	40-2700	134.0	6.48	106-2200 (EA)	N	In	L	.....	1.53	1.46	1.34	1.23	.359	.359	.373	.373
78	Jeep	M	4-3 1/16x4 1/2	.....	61-3600	134.0	6.48	106-2200 (EA)	N	In	L	.....	1.53	1.46	1.34	1.28	.359	.359	.373	.373
79	Prince	M	6-3 5/16x4 1/2	.....	95-3600	221.0	6.50	.....	N	In	L	SII	1.87	1.87	1.81	1.81	.281	.281	.310	.310
80	Rover	M	6-4x4 1/2	.....	122-3000	320.0	6.90	235-2000 (EA)	N	In	L	CNS	1.84	1.62	1.62	1.37	.376	.376	.373	.373
81	Mate	M	6-4 1/2x4 5/8	.....	155-3000	404.0	6.50	.....	N	In	L	CNS	2.06	1.87	1.81	1.62	.500	.500	.373	.373
82	Farer	M,Ind	6-5x5 1/2	.....	200-2400	678.0	5.70	480-1000 (EA)	N	Se	L	CNS	2.62	2.37	2.37	2.00	.437	.375	.437	.437
83	Raider-6	M,Ind	6-5 1/4x6	.....	250-2400	779.0	6.00	620-2200 (EA)	N	Se	I	Tun	1.93	1.93	1.76	1.76	.375	.375	.437	.437
84	Raider-12	M,Ind	12-5 1/4x6	.....	550-2400	1560.0	5.70	1070-1400 (EA)	N	Se	I	CNS	1.93	1.93	1.76	1.76	.375	.375	.437	.437

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

GASOLINE ENGINES—*continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT								CARBURETOR			OVERALL DIMENSIONS (In.)				
Seats													Crank-Pin	MAIN BEARINGS												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engines Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing S.A.E. Nos.)	Line Number
(h)	N		HG	Al		.703x2.43	3	CS	5¼		1045	N	1.5x1.18	3	1.75x1.78	1.75x1.37	acdr	Zen	1¼	365	17⅝	19⅞	29¼		1
(h)	N		HG	Al		.859x2.87	4	1035	7		1045		2.12x1.37	3	2.37x2.06	2.37x1.43	acdr	Zen	1¼	435	21⅛	22¾	33		2
(h)	N		HG	Al		.859x2.68	4	CS	7		1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	acdr	Zen	1⅝	500	23½	22⅞	33		3
(h)	N		HG	Al		.859x2.87	4	CS	7		1045	Y	2.06x1.31	4	2.25x1.73	2.25x1.26	acdr	Zen	1⅝	550	21⅛	23¼	39½		4
45	N		HG	Al		.859x2.87	4	CS	8⅝		1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½	790	25⅞	23½	42⅛		5
(h)	N		HG	Al		.703x2.43	3	CS	5¼		1045	N	1.5x1.18	3	1.75x1.78	1.75x1.37	acdr	Zen	1¼	365	17⅝	19⅞	29¼		6
(h)	N		HG	Al		.859x2.68	4	CS	7		1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	acdr	Zen	1⅝	500	21⅛	22⅞	33		7
45	N		HG	Al		.859x2.87	4	CS	8⅝		1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½	790	25⅞	23½	42⅛		8
45	N		HG	Al		.859x2.87	4	CS	8⅝		1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½	790	27½	26¾	42⅛		9
(h)	N		HG	Al		.703x2.43	3	CS	5¼		1045	N	1.51x1.18	3	1.75x1.78	1.75x1.37	acdr	Zen	1¼		17⅝	19⅞	29¼		10
45	N		HG	Al		.874x2.92	4	CS	8⅞		1045	Y	2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½		29¾	27⅞	37½		11
(k)	N		HG	Al		.859x2.81	4	1030	7		1045		2.06x1.31	4	2.25x1.73	2.25x1.26	acdr	Zen	1⅝	645	21⅛	23¼	39½		12
45	N		HG	Al		.859x2.87	4	1035	8½		1045		2.12x1.37	4	2.37x2.06	2.37x1.43	acdr	Zen	1½	790	25⅞	23½	42⅛		13
(k)	N		HG	Al		1.10x3.43	5	1035	8½		1045		2.25x1.56	7	2.62x2.15	2.62x1.86	acdr	Zen	2	1000	24½	28¼	48¼		14
(h)	E	4140*	Ch	Al	53	1.12x3.98	4	3135	11	79.1	4140	Y	2.62x2.00	8	3.00x1.46	3.00x2.28	acdef	Zen	2	1275*	50⅛	20⅛	70⅛	2	15
(h)	E	4140*	Ch	Al	74.4	1.12x3.98	4	3135	11	79.1	4140	Y	2.62x2.00	8	3.00x1.46	3.00x2.28	acdef	Zen	2	1275*	50⅛	20⅛	70⅛	2	16
(h)	E	4140*	Ch	Al	96	1.37x4.20	4	3135	11	104	4140	Y	2.75x2.44	7	3.25x2.19	3.25x2.50	acdefg	Zen	2	1788*	54⅛	22	71⅛	1, 2	17
(h)	E	4140*	Ch	Al	101	1.37x4.44	5	3135	11	104	4140	Y	2.75x2.44	7	3.25x2.19	3.25x2.50	acdefg	Zen	2	1788*	54⅛	22	71⅛	1, 2	18
(h)	E	4140*	Ch	Al	101	1.37x4.44	5	3135	11	104	4140	Y	2.75x2.44	7	3.25x2.19	3.25x2.50	acdefg	Zen	2	1870*	56½	22	71⅛	1, 2	19
(h)	E	4140*	HC	Al	116	1.37x4.66	5	3140	12	132	4140	Y	3.00x2.43	7	3.25x2.09	3.25x3.12	acdefg	Zen	2½	2150*	28	44½	60½	1, 2, 0	20
(h)	E	4140*	HC	Al	132	1.37x4.93	6	3140	12	132	4140	Y	3.00x2.43	7	3.25x2.09	3.25x3.12	acdefg	Zen	2½	2150*	28	44½	60½	1, 2, 0	21
(h)	E	4140*	NC	Al	120	1.37x4.93	6	3140	12	132	4140	Y	3.00x2.43	7	3.25x2.09	3.25x3.12	acdefg	Zen	2½	2150*	28	44½	60½	1, 2, 0	22
30	N		Ch	Al	108	1.37x4.66	5	AS	11	117	4140	Y	2.50x2.45	7	2.75x1.94	2.75x1.94	acdefr	Zen(2)	2	3265*	28½	47½	97½		23
30	N		Ch	Al	108	1.37x4.66	5	AS	11	117	4140	Y	2.50x2.45	7	2.75x1.94	2.75x1.94	acdefr	Zen(2)	2	2200*	27¾	40¾	78½		24
30	E	4140*	HC	Al	128	1.37x4.94	5	3140	12	2374	4140	Y	3.00x2.43	7	3.25x2.09	3.25x2.09	acdefgr	Zen(3)	2½	4560*	43¾	50½	100⅛		25
30	E	4140*	HC	Al	128	1.37x4.96	6	3140	12	2374	1440	Y	3.00x2.43	7	3.25x2.09	3.25x2.09	acdefgr	Zen(3)	2½	3650*	45	47¼	88		26
(h)	E	4140*	HC	Al	141	1.62x4.93	4	3140	11½	136	4140		3.24x2.06	7	3.50x2.10	3.50x3.05	acdefgr	Zen	2½	2150	30½	44	61¼	2, 1, ½, 0	27
(h)	E	4140*	HC	Al	125	1.62x4.88	4	3140	11½	136	4140		3.24x2.06	7	3.50x2.10	3.50x3.05	acdefgr	Zen	2½	2150	30½	44	61¼	2, 1, ½, 0	28
(h)	E	4140*	HC	Al	145	1.62x4.93	4	3140	11½	136	4140		3.24x2.06	7	3.50x2.10	3.50x3.05	acdefgr	Zen	2½	2150	30½	44	61¼	2, 1, ½, 0	29
30	N		HG	CI	25	.687x2.50	3	3140	5½	15	1045	Y	1.50x1.00	2	2.00x1.25	2.00x1.37	acg	Op	⅝	131	19¼	15½	18⅞	5, 6	30
30	N		HG	CI	28	.750x2.56	3	3140	6⅛	21	1045	Y	1.75x1.12	2	2.00x1.56	2.00x1.62	acg	Op	¾	270	17¾	18¼	20⅛	4, 5	31
30	N		HG	CI	29.5	.750x2.81	3	3140	6⅛	21	1045	Y	1.75x1.12	2	2.00x1.56	2.00x1.62	acg	Op	¾	270	17¾	18¼	20⅛	4, 5	32
30	N		HG	CI	19	.687x2.20	3	3140	5½	15	4140	N	1.50x1.00	3	2.00x1.31	2.00x1.37	acg	Op	Op	179	16½	16¼	23⅛	5, 6	33
30	N		HG	AC	21	.687x2.33	3	3140	5½	15	4140	N	1.50x1.00	3	2.00x1.31	2.00x1.37	acg	Op	Op	179	16½	16¼	23⅛	5, 6	34
30	N		HG	AC	28	.750x2.56	3	3140	6⅛	21	CS‡	N	1.75x1.12	3	2.00x1.56	2.00x1.62	acg	Op	Op	285	18½	19¼	36⅛	4, 5	35
30	N		HG	AC	29.5	.750x2.81	3	3140	6⅛	21	CS‡	N	1.75x1.12	3	2.00x1.56	2.00x1.62	acg	Op	Op	293	18½	19¼	36⅛	4, 5	36
30	N		HG	Al	29.5	.75x2.81	3	3140	6⅛	21	4140		1.75x1.12	3	2.00x1.56	2.00x1.62	acdg	Op	Op	293	18½	19¼	36⅛	4, 5	37
45	N		HG	Al	31	1.00x2.90	4	1040	8	37	1046		2.00x1.50	5	2.50x1.31	2.50x2.12	acg	Op	1¼	470	19½	23	30½	3, 4, 5	38
45	N		HG	Al	37.5	1.00x3.25	4	1040	8	37	1046		2.00x1.50	5	2.50x1.31	2.50x2.12	acg	Op	1¼	470	19½	23	30½	3, 4, 5	39
45	N		HG	Al	40S	1.00x3.50	4	1040	8	37	1046		2.00x1.50	5	2.50x1.31	2.50x2.12	acg	Op	1¼	470	19½	23	30½	3, 4, 5	40
30	N		HG	Al	23.1	.875x2.87	4	1035	7	26	CS‡	Op	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Op	1¼	440	17½	20⅞	35⅛	5	41
30	N		HG	Al	24	.875x2.81	4	1035	7	26	CS‡	Op	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Op	1¼	440	17½	20⅞	35⅛	5	42
30	N		HG	Al	26	.875x2.92	4	1035	7	26	CS‡	Op	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Op	1¼	440	17½	20⅞	35⅛	5	43
30	N		HG	Al	26	.875x2.92	4	1035	7	26	CS		2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Op	1¼	440	17½	20⅞	35⅛	3, 4, 5	44
30	N		HG	Al	26	.875x2.92	3	1035	7	26	CS‡	Y	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Op	1¼	445	17½	20⅞	35⅛	3, 4, 5	45
45	N		HG	Al	31	1.00x2.92	4	1040	8	37	CS‡	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1¼	580	18½	24⅛	39	3, 4, 5	46
45	N		HG	Al	35.5	1.00x3.17	4	1040	8	37	CS‡	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1¼	605	18½	24⅛	39	3, 4, 5	47
45	N		HG	Al	37.5	1.00x3.26	4	1040	8	37	CS‡	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1¼	605	18½	24⅛	39	3, 4, 5	48
45	N		HG	Al	40.5	1.00x3.51	4	1040	8	37	CS‡	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1¼	605	18½	24⅛	39	3, 4, 5	49
30	N		HG	Al	44.5	1.12x3.44	4	1035	8	39.2	CS‡	Y	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1¼	605	18½	24⅛	39	3, 4, 5	50
45	N		HG	Al	50	1.12x3.56	4	1035	9½	50	CS‡	Op	2.25x1.50	7	2.62x1.75	2.62x2.75	acdg	Op	1⅝	630	18½	24⅛	39	3, 4, 5	80
45	N		HG	Al	44	1.12x3.56	4	3140	8⅞	50	CS‡	Op	2.25x1.50	7	2.62x1.75	2.62x2.75	acdg	Op	1½	820	23½	28½	42⅛	2, 3	51
45	N		HG	Al	50	1.12x3.56	4	3140	8⅞	50	CS‡	Op	2.25x1.50	7	2.62x1.75	2.62x2.75	acdg	Op	1½	811	23½	28½	42⅛	2, 3	52
45	N		HG	Al	50	1.12x3.56	4	3140	8⅞	50	CS‡	Op	2.25x1.50	7	2.62x1.75	2.62x2.75	acdg	Op	1½	825	23½	28½	42⅛	2, 3	53
(h)	N		HG	Al	63.5	1.31x3.62	4	3140	9¼	76.9	1045‡	Y	2.62x2.00	7	3.00x1.93	3.00x2.93	acdg	Op	2	1345	27½	34½	47½	2	54
(h)	N		HG	Al	65	1.31x3.62	4	3140	9¼	76.9	1045		2.62x2.00	7	3.00x1.93	3.00x2.93	acdg	Op	2	1230	27½	34½	47½	2, 1	55
45	N		HG	Al	60	1.25x3.93	5	3140	9¼	76	CS‡	Op	2.62x2.00	7	3.00x1.93	3.00x2.93	acdg	Op	1⅝	1000	23½	32½	48⅛	2, 3	56
45	N		HG	Al	63	1.25x4.07	5	3140	9¼	76	CS‡	Op	2.62x2.00	7	3.00x1.93	3.00x2.93	acdg	Op	1⅝	1010	23½	32½	48⅛	2, 3	57
45	N		HC	Al	65	1.25x4.07	5	E-4342	9¾	97	CS‡	Op	3.00x2.00	7	3.50x1.93	3.50x2.93	acdg	Op	1¾	1195	25½	35½	48⅛	1, 2	58
(h)	N		HG	Al	68	1.25x4.20	5	E-4342	9¾	97	CS‡	Op	3.50x2.00	7	3.50x1.93	3.50x2.93	acdg	Op	1¾	1195	25½	35½	48⅛	1, 2	59
(h)	N		HG	Al	66	1.50x4.11	4	E-4342	9¾	97	1045‡	Y	3.00x2.00	7	3.50x1.93	3.50x2.93	acdg	Op	2	1470	27½	34½	47½	1, 2	60
30	N		HG	Al	98	1.50x4.43	4	3140	12	166	1045‡	Op	3.00x2.25	7	3.50x2.37	3.50x3.50	acdg	Op	2	1810	28¼	40⅛	55½	00, 0, 1	61
30	N		HG	Al	108	1.50x4.56	4	3140	12	166	1045‡	Op	3.00x2.25	7	3.50x2.37	3.50x3.50	acdg	Op	2	1810	28¼	40⅛	55½	00, 0, 1	62
30	N		HG	Al	119	1.50x4.81	4	3140	12	166	1045‡	Op	3.00x2.25	7	3.50x2.37	3.50x3.50	acdg	Op	2	1830	28¼	40⅛	55½	00, 0, 1	63
30	N		HG	Al	126	1.50x5.06	4	3140	12	166	1045‡	Op	3.00x2.25	7	3.50x2.37	3.50x3.50	acdg	Op	2	1830	28¼	40⅛	55½	00, 0, 1	64
44	N		HG	CI	20	.688x2.19	3	1035	5	15.4	1046‡	Y	1.50x .76	3	1.62x1.06	1.62x1.06	acdg	Own	¾	279*	18⅛	25¼	26⅞	5	65
44	N		HG	CI	35	.919x2.50	4	1040	7½	33	1046‡	N	1.78x1.19	3	2.12x1.37	2.12x1.84	acdfg	Zen	⅞	478*	18⅛	33½	30⅛	4	66
44	N		HG	CI	53	1.11x2.78	4	1040	8	57	1046‡	N	2.25x1.23	3	2.50x1.49	2.50x1.49	acdfg	Own	1	660*	18½	34¼	33½	4	67
44	E	MA	HG	CI	82.5	1.31x3.25	4	1040	10	93	1046‡	N	2.50x1.72	3	2.75x1.56	2.75x1.56	acdfg	Own	1¼	955*	20⅝	38⅜	37	2	68
44	E	MA	HG	CI	115	1.50x3.70	5	1040	11	124	1046‡	N	3.00x1.97	3	3.25x1.87	3.25x1.87	abcdfg	Own	1⅝	1230*	23½	42⅛	40½	1	69
30	E	Dm	HG	Al	33	.875x2.95	4	DFS	6½	41	C1046		2.38x1.16	4	2.75x1.38	2.75x1.95	abcdfg	Car	1¼	807	22½	36½	46½		70
30	E	Dm	HG	Al	31	.875x2.95	4	DFS	6½	41	C1046		2.38x1.16	4	2.75x1.38	2.75x1.95	abcdfg	Car	1¼	807	22½	39½	46½		71
45	E	Dm	HG	Al	31	.919x2.95	4	DFS	8⅛	43	C1046		2.12x1.41	4	2.70x1.12	2.70x1.23	abcdfg	Car	1¼	781	28⅛	40½	47½		72
(n)	E	Dm	HG	Al	6.3	1.11x3.80	4	DFS	9	61	C1046		2.75x1.38	7	3.25x1.34	3.25x1.84	abcdfg	Hol	1¼	937	29½	45½	47½	2	73
(n)	E	Dm	HG	Al	6.0	1.11x3.80	4	DFS	9	61	C1046		2.75x1.38	7	3.25x1.34	3.25x1.84	abcdfg	Hol	1¼	942	29½	45½	47½	2	74
(n)	E	Dm	HG	Al	5.7	1.11x3.80	4	DFS	9	61	C1046		2.75x1.38	7	3.25x1.34	3.25x1.84	abcdfg	Hol	1¼	948	29½	45½	47½	2	75
30	N		HG	CI	19	.687x2.18	3	CS	5¼	15	CS	N	1.50x1.00	3	2.00x1.37	2.00x1.31	acdr	Str	¾	300*	18½	17⅝	29⅛		76
45	N		Ch	Al	12	.812x2.78	3	MS	9⅛	34	1040	Y	1.93x1.31	3	2.33x1.75	2.33x1.92	acdr	Str	1¼	495	21¼	24½	36		77
45	N		HG	Al	12	.812x2.78	3	MS	9⅛	34	1040	Y	1.93x1.31	3	2.33x1.75	2.33x1.92	acdr	Str	1¼	495	21¼	24½	36		78
30	N		HG	Al	24	.875x2.79	4	CS	7	26	CS	N	2.00x1.25	7	2.50x1.93	2.50x1.87	acdr	Str	1½	620*	24	24½	42⅛		79
30	N		HG	Al	40	1.00x3.51	4	CS	8	38	CS	N	2.00x1.50	7	2.50x2.12	2.50x1.37	acdr	Str	1⅝	925*	21½	27⅜	52½		80
30	N		HG	Al		1.12x3.62	4	CS	9	51	CS	Y	2.25x1.12	7	2.68x2.75	2.68x1.75	acdr	Str	2	1125*	24½	29⅝	56⅛		81
45	N		HG	Als	82	1.25x4.50	4	DFS	11	80	CS	N	2.25x2.22	7	2.50x3.91	2.50x2.62	abcdgr	Str(2)	1⅝	1570*	26½	34⅛	69⅛		82
45	N		HG	Al	82	1.25x4.50	4	CNS	11	184	CNS		2.75x2.25	7	3.00x3.84	3.00x2.25	acdefg	Zen(2)	2	2450	27	40½	77	4-2-0	83
45	N		SB	Als	82	1.25x4.50	4	CNS	11	184	CNS	Y	2.75x2.25	7	3.00x3.84	3.00x2.25	abcdgr	[Str(4)	2	2700*	42½	43⅞	75½		84

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

1952 AUTOMOTIVE

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Lathrop Standard	M	3-$5\frac{1}{4}$x$6\frac{1}{2}$		27- 700	412.1		206- 600 (EA)	N	Se	Th	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
2	Standard	M	3-$5\frac{1}{2}$x$6\frac{1}{2}$		34- 800	453.2		237- 700 (EA)	N	Se	Th	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
3	LH	M	4-$3\frac{1}{2}$x4		38-2200	133.0		92-2000 (EA)	N	In		CNS			1.25	1.22	.312	.312	.312	.312
4	LH-Master	M	4-4x$4\frac{1}{4}$		68-2600	214.0			N	In	L	CNS	1.62	1.75	1.50	1.37	.375	.375	.375	.375
5	Standard	M	4-$5\frac{1}{4}$x$6\frac{1}{2}$		29- 700	549.5		233- 500 (EA)	N	Se	Th	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
6	Standard	M	4-$5\frac{1}{2}$x$6\frac{1}{2}$		49- 800	617.7		342- 600 (EA)	N	Se	Th	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
7	Engineers	M	4-$5\frac{1}{2}$x7		64-1000	665.2		373- 650 (EA)	N	Se	L	CNS	2.68	2.50	2.31	2.12	.375	.375	.500	.500
8	Engineers	M	4-6x7		76-1000	791.6		461- 700 (EA)	N	Se	L	CNS	2.68	2.50	2.31	2.12	.375	.375	.500	.500
9	LH	M	6-$3\frac{3}{8}$x$4\frac{1}{4}$		62-2200	282.0		173- 550 (EA)	N	In	L	CNS			1.50	1.37	.312	.312	.375	.375
10	De Luxe LH-D6	M	6-$4\frac{1}{4}$x$4\frac{1}{4}$		107-2500	320.0		226-2500 (EA)	N	In	L	CNS	1.75	1.62	1.50	1.37	.356	.356	.375	.375
11	LH-Super	M	6-$4\frac{1}{4}$x$4\frac{1}{2}$		132-3200	339.0		132-3200 (EA)	N	In	L	CNS	1.75	1.62	1.50	1.37	.375	.375	.375	.375
12	Mystic	M	6-$4\frac{1}{4}$x$5\frac{1}{2}$		96-1600	324.8		321-1350 (EA)	N	Se	L	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
13	Mystic	M	6-$4\frac{3}{4}$x$5\frac{1}{2}$		108-1600	384.7		379- 900 (EA)	N	Se	L	CNS	2.25	2.25	2.00	2.00	.375	.375	.437	.437
14	Mystic	M	6-5x$6\frac{1}{2}$		155-1500	926.8		561-1200 (EA)	N	Se	L	CNS	2.68	2.68	2.31	2.31	.437	.437	.500	.500
15	Mystic	M	6-$5\frac{1}{8}$x$6\frac{1}{2}$		179-1600	1012.8		640-1100 (EA)	N	Se	L	CNS	2.68	2.68	2.31	2.31	.437	.437	.500	.500
16	Engineers	M	6-6x7		118-1000	1187.5		650- 925 (EA)	N	Se	L	CNS	2.68	2.50	2.31	2.12	.375	.375	.500	.500
17	Le Roi A288	Ind	1-$7\frac{1}{4}$x7		26.3- 720	288.9	5.80	195- 500 (EA)	W	In	I	Sil	3.34	2.81	2.00	2.62	.530	.530	.622	.621
18	D91	Ind,Tr	4-$2\frac{7}{8}$x$3\frac{1}{2}$	22.8-2200	22.0-2200	90.8	5.80	60-1500 (EA)	N	In	L	Sil	1.43	1.43	1.06	1.06	.188	.188	.312	.313
19	D140	Ind,Tr	4-$3\frac{1}{8}$x$3\frac{5}{8}$	37-2400	33.5-2400	140.0	5.85	94-1300 (EA)	W	In	I	CNS	1.37	1.28	1.18	1.18	.375	.375	.343	.342
20	D176	Ind,Tr	4-$3\frac{3}{8}$x4	42.0-2000	40-2000	176.0	5.43	124-1200 (EA)	W	In	I	CNS	1.68	1.50	1.37	1.25	.373	.373	.372	.372
21	D201	Ind,Tr	4-4x4	47.5-2000	45.5-2000	201.0	5.43	140-1200 (EA)	W	In	I	CNS	1.68	1.50	1.37	1.25	.373	.373	.372	.372
22	D226	Ind,Tr	4-4x$4\frac{1}{2}$	54-2000	52-2000	226.0	5.09	166-1200 (EA)	W	In	I	CNS	1.68	1.50	1.37	1.25	.373	.373	.372	.372
23	D471	Ind,Tr	4-5x6	76.5- 400	75-1400	471.0	5.15	320- 900 (EA)	W	In	I	CNS	1.87	1.81	1.75	1.62	.470	.470	.433	.433
24	D1000	Ind	4-$6\frac{1}{8}$x7	145-1200	138-1200	1002.0	4.50	690- 650 (EA)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.625	.625	.624	.624
25	F1500	Ind	6-$6\frac{1}{4}$x7	215-1200	205-1200	1503.0	4.50	1035- 650 (EA)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.625	.625	.624	.624
26	TH540	Tr,Ind	V8-$4\frac{1}{4}$x$4\frac{1}{4}$	170-2400	155-2400	540.0	5.60	421- 900 (EA)	W	In	I	Sil	1.94	1.50	1.62	1.37	.410	.410	.373	.372
27	H540	T,B	V8-$4\frac{1}{4}$x$4\frac{1}{4}$	206-3000		540.0	6.70	450-1800 (EA)	W	In	I	Sil	1.94	1.50	1.62	1.37	.410	.410	.373	.372
28	H2000	Ind	V8-$6\frac{1}{8}$x7	290-1200	270-1200	2004.0	4.50	1375- 650 (EA)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.625	.625	.624	.624
29	L3000	Ind	V12-$6\frac{1}{4}$x7	435-1200	410-1200	3006.0	4.50	2070- 650 (EA)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.625	.625	.624	.624
30	L3480	Ind	V12-$7\frac{1}{8}$x7	595-1350	586-1350	3468.0	4.57	2530- 900 (EA)	W	In	I	Sil	3.34	2.81	2.75	2.62	.625	.625	.622	.621
31	Lycoming O-290-G	Ind	4-$4\frac{7}{8}$x$3\frac{7}{8}$		95-2200	289.0	6.50	235-1800 (EA)	AF	Se	I	Aus	2.00	1.76	1.70	1.55	.402	.402	.402	.402
32	Mack EN291	T	6-$3\frac{3}{4}$x$4\frac{3}{4}$	112-3200	105-3200	290.0	6.90	225-1400 (EA)	N	In	L	CNS	2.01	1.53	1.75	1.38	.430	.430	.435	.433
33	EN331	T	6-$4x4\frac{3}{8}$	130-3200	121-3200	330.0	6.90	256-1400 (EA)	N	In	L	CNS	2.01	1.53	1.75	1.38	.430	.430	.435	.433
34	EN377	T	6-4x5	147-3200	132-3200	377.0	6.90	283-1400 (EA)	N	In	L	xSCS	2.01	1.53	1.75	1.38	.430	.430	.435	.433
35	EN431A	T	6-$4\frac{1}{4}$x$5\frac{5}{8}$	147-2800	129-2800	431.0	6.32	326-1400 (EA)	N	In	I	xSCS	2.04	1.75	1.81	1.56	.461	.458	.435	.433
36	EN510A	T	6-$4\frac{1}{2}$x$5\frac{1}{2}$	161-2600	143-2600	510.0	6.07	383-1000 (EA)	N	In	I	xSCS	2.04	1.75	1.81	1.56	.461	.458	.435	.433
37	EN510A	B	6-$4\frac{1}{2}$x$5\frac{1}{2}$	161-2600	142-2600	510.0	6.07	386-1000 (EA)	N	In	I	SCS	2.04	1.75	1.81	1.56	.461	.458	.435	.433
38	ENF510A	FA	6-$4\frac{1}{2}$x$5\frac{1}{2}$	161-2700	150-2700	510.0	6.24	398-1200 (EA)	N	In	I	xSCS	2.04	1.75	1.81	1.56	.461	.458	.435	.433
39	EN707A	T	6-5x6	210-2500	193-2500	707.0	6.10	544-1100 (EA)	N	In	I	xSCS	2.27	1.96	2.06	1.75	.500	.500	.498	.498
40	ENF377	FA	6-4x5	147-3200	129-3200	377.0	7.20	312-1400 (BE)	N	In	L	SCS	2.00	1.52	1.75	1.37	.430	.430	.435	.433
41	ENF707B	FA	6-5x6	225-2600	205-2600	707.0	6.42	579-1200 (BE)	N	In	I	SCS	2.27	1.96	2.06	1.75	.500	.500	.498	.498
42	Minneapolis-Moline 165-4	Ind,Tr	4-$3\frac{5}{8}$x4	30-1500	29-1500	165.1	6.10	115-1000 (BE)	N	Se	Hh		1.46	1.46	1.25	1.25	.355	.355	.341	.341
43	206A-4	Ind,Tr	4-$3\frac{5}{8}$x5	40-1500	38-1500	206.5	6.15	152-1100 (BE)	N	Se	Hh		1.46	1.46	1.25	1.25	.355	.355	.341	.341
44	283-4	Ind,Tr	4-$4\frac{1}{8}$x5	51-1300	48-1300	283.7	5.40	210-1100 (BE)	N	Se	I		1.72	1.59	1.50	1.37	.490	.490	.434	.434
45	403-4	Ind,Tr	4-$4\frac{5}{8}$x6	67-1200	64-1200	403.2	5.40	304-1100 (BE)	N	Se	I		1.84	1.72	1.62	1.50	.490	.490	.434	.434
46	425-6	Ind	6-$4\frac{1}{8}$x5	84-1400	76-1400	425.5	5.40	318- 900 (BE)	N	Se	I		1.72	1.59	1.50	1.37	.490	.490	.434	.434
47	605-6	Ind	6-$4\frac{5}{8}$x6	104-1300	98-1300	605.0	5.40	446- 800 (BE)	N	Se	I		1.84	1.72	1.62	1.50	.490	.490	.434	.433
48	1210-12A	Ind	12-$4\frac{5}{8}$x6	218-1300	198-1300	1210.0	5.75	882- 800 (BE)	N	Se	I		1.84	1.72	1.62	1.50	.490	.490	.434	.434
49	V206-4	Tr	4-$3\frac{5}{8}$x5	38-1500	37-1500	206.5	6.15	145-1100 (BE)	N	Se	Hh		1.46	1.46	1.25	1.25	.355	.355	.341	.341
50	Norberg Bluefin 230	M	6-$3\frac{1}{8}$x$4\frac{1}{4}$		95-3200	230.0	6.86	154-1600	N	In	L		1.61	1.39			.311	.311	.310	.310
51	Arrow 230	M	6-$3\frac{1}{8}$x$4\frac{1}{4}$		95-3200	230.0	6.86	176-2000	N	In	L		1.61	1.39			.311	.311	.310	.310
52	Marlin 320	M	6-$4x4\frac{1}{4}$		110-2500	320.0	6.50	243-1600	N	In	L		1.75	1.62			.356	.356	.372	.372
53	Knight 340	M	6-$4x4\frac{1}{4}$		145-3200	340.0	6.86	265-2200	N	In	L	Aus	1.83	1.68			.356	.356	.372	.372
54	Bullet	M	6-$3\frac{7}{8}$x$4\frac{5}{8}$		110-3400	236.7	6.80	193-1600	N	In	L	Aus	1.61	1.39			.349	.349	.310	.310
55	Oliver 66HC	Tr	4-$3\frac{1}{8}$x$3\frac{3}{4}$		27.6-1600	129.3	6.75	101-1000 (EA)	W	In	I	Sil	1.31	1.12	1.18	.995	.312	.281	.372	.371
56	90	Tr	4-$4\frac{1}{4}$x$6\frac{1}{4}$		56.7-1125	443.0	4.10	250- 850 (EA)	W	In	I	Sil	2.31	2.31	2.00	2.00	.437	.437	.437	.437
57	99	Tr	4-$4\frac{3}{4}$x$6\frac{1}{4}$		68.9-1125	443.0	5.04	295- 850 (EA)	W	In	I	Sil	2.31	2.00	2.00	1.75	.437	.437	.437	.437
58	77HC	Tr	6-$3\frac{1}{8}$x$3\frac{3}{4}$		40.4-1600	193.9	6.75	146-1000 (EA)	W	In	I	Sil	1.31	1.12	1.18	.995	.312	.281	.372	.371
59	88HC	Tr	6-$3\frac{1}{8}$x4		48.6-1600	231.0	6.75	176-1000 (EA)	W	In	I	Sil	1.40	1.28	1.25	1.12	.359	.362	.372	.371
60	Palmer BH	M	1-$3\frac{1}{2}$x$3\frac{1}{2}$		6-2500	26.0	5.40	6-2500 (EA)	N	Se	L	Sil	1.34	1.34	1.15	1.15	.281	.281	.310	.310
61	HH	M	2-$3\frac{1}{2}$x4		7.5-1200	59.0	6.00	31-1200 (EA)	N	Se	L	Sil	1.46	1.46	1.25	1.25	.282	.282	.310	.310
62	PH45	M	4-$3\frac{1}{2}$x4		48-3000	133.0	7.20	92-2000 (EA)	N	In	L	CNS	1.48	1.35	1.25	1.12	.312	.312	.310	.310
63	PH75	M	6-$3\frac{1}{2}$x$4\frac{1}{2}$		80-3000	230.0	7.50	162-1400 (EA)	N	In	L	CNS	1.60	1.39	1.50	1.25	.315	.315	.310	.310
64	PH120	M	6-$4x4\frac{1}{4}$		125-3000	320.0	7.50	240-1400 (EA)	N	In	L	CNS	1.82	1.67	1.65	1.50	.360	.360	.373	.373
65	ZR4	M	4-$5\frac{1}{2}$x6		40- 800	572.0	4.50	250- 800 (EA)	N	Se	Th	Sil	2.34	2.34	2.00	2.00	.435	.435	.434	.434
66	Red Wing KK	M	2-$3\frac{3}{4}$x$4\frac{3}{4}$	11-1100	10-1100	105.0	4.00	54- 800 (EA)	N	Se	L	NCI	1.62	1.62	1.43	1.43	.300	.300	.375	.375
67	Meteor CK	M	4-$2\frac{1}{8}$x$3\frac{1}{4}$	18-2600	16-2600	61.3	5.70	40-1700 (BE)	N	Se	L	Sil	1.12	.937	1.00	.812	.228	.250	.312	.312
68	DS	M	4-$2\frac{3}{4}$x4	19-1800	16-1800	95.0	4.66	52-1300 (EA)	N	In	L	Sil	1.46	1.34	1.31	1.18	.250	.250	.312	.312
69	Arrowhead, Jr.	M	4-$3\frac{1}{4}$x4	38-2600	35-2600	133.0	5.58	92-1200 (EA)	N	In	L	Sil	1.34	1.34	1.18	1.18	.281	.281	.312	.312
70	Arrowhead	M	4-$3\frac{5}{8}$x$4\frac{1}{4}$	43-2200	37-2200	186.0	5.50	128- 900 (EA)	N	In	L	Sil	1.56	1.56	1.37	1.37	.281	.281	.375	.375
71	AA	M	4-$3\frac{5}{8}$x$4\frac{3}{4}$	27-1400	24-1400	210.0	4.00	113- 700 (EA)	N	Se	L	NCI	1.62	1.62	1.43	1.43	.300	.300	.375	.375
72	F	M	4-$4\frac{1}{4}$x5	39-1400	36-1400	284.0	4.00	142-1000 (EA)	N	Se	L	NCI	1.93	1.93	1.75	1.75	.300	.300	.375	.375
73	B	M	4-$4\frac{1}{4}$x5	47-1800	44-1800	318.0	4.00	180- 900 (EA)	N	Se	L	CNS	2.09	2.09	1.93	1.93	.300	.300	.375	.375
74	BB-4	M	4-$4\frac{1}{2}$x6	59-1600	56-1600	382.0	4.00	224-1100 (EA)	N	Se	L	Sil	2.34	2.34	2.12	2.12	.300	.300	.437	.437
75	BC-4	M	4-5x7	60-1200	56-1200	550.0	4.00	292- 900 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
76	BCS-4	M	4-$5\frac{1}{4}$x7	75-1100	71-1100	727.0	4.00	409- 900 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
77	BC-Super-4	M	4-6x7	82-1100	78-1100	791.7	4.00	465- 700 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
78	Hiawatha Spec.	M	6-$4x4\frac{1}{4}$	66-2800	63-2800	320.0	5.75	210-1000 (BE)	N	In	L	Sil	1.68	1.43	1.50	1.25	.375	.375	.375	.375
79	Arrow-Super-6	M	6-$4\frac{1}{4}$x$4\frac{3}{4}$	98-2500	95-2500	404.0	5.38	286- 800 (EA)	N	In	L	Sil	1.93	1.43	1.75	1.25	.375	.375	.375	.375
80	BB-6	M	6-$4\frac{1}{2}$x6	84-1725	80-1725	572.5	4.00	379- 900 (EA)	N	Se	L	Sil	2.34	2.34	2.12	2.12	.300	.300	.437	.437
81	BBS-6	M	6-5x6	105-1500	101-1500	707.0	4.00	420- 900 (EA)	N	Se	L	Sil	2.34	2.34	2.12	2.12	.300	.300	.437	.437
82	BC-6	M	6-5x7	94-1100	90-1100	825.0	4.00	452-1000 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
83	BCS-6	M	6-$5\frac{1}{4}$x7	116-1100	112-1100	1091.0	4.00	596- 850 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625
84	BC-Super-6	M	6-6x7	128-1100	124-1100	1187.5	4.00	630- 875 (EA)	N	Se	L	Dia	2.75	2.75	2.37	2.37	.375	.375	.625	.625

For abbreviations, see page 271

For Directory of the Manufacturers listed above, see page 338

GASOLINE ENGINES—*continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT								CARBURETOR			OVERALL DIMENSIONS (In.)				
Seats														MAIN BEARINGS												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing (S.A.E. Nos.)	Line Number
47			HG	CI	160	1.37x4.62	4	AS	12 1/4	96	CNS	N	1.87x2.75	4	2.25x5.00	2.25x4.00	acg	Zen	1 1/2	1400	25	22 1/4	60 1/2		1
45			HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	1.87x2.75	4	2.25x5.00	2.25x4.00	acg	Zen	1 1/2	1450	25	22 1/4	60 1/2		2
30			HG	AI		.750x2.81	3	AS	6 3/4		CNS	N	1.87x2.75	4			acg	Zen	1	440	17 1/2	14 3/4	60 1/2		3
30	N		HG	AI	40	1.00x3.50	4	AS	8	38	CNS		2.00x1.50	5	2.53x1.31	2.50x2.12	acdg	Zen	1 1/4	795	20	26 1/2	38 1/4		4
45			HG	CI	160	1.37x4.62	4	AS	12 1/4	96	CNS	N	2.00x1.50	3	2.00x2.18	2.00x2.62	acg	Zen	1 1/2	1700	25 3/4	22 1/4	68 1/2		5
45			HG	CI	179	1.37x5.00	4	AS	12 1/4	96	CNS	N	1.87x2.75	5	2.25x5.00	2.25x4.00	acg	Zen	1 1/2	1750	25 3/4	22 1/4	68 1/2		6
45	E	Spec	HG	CI	188	1.50x5.00	4	AS	13 1/4	172	CNS	N	1.87x2.75	5	2.25x5.00	2.25x4.00		Zen		2100	29 1/4	24	74 1/4		7
45	E	Spec	HG	CI	204	1.50x5.50	4	AS	13 1/4	172	CNS	N	2.75x2.75	5	3.00x3.50	3.00x3.50	acdg	Zen		2290	29 1/4	24	75		8
30			HG	AI		1.00x3.50	3	AS	8		CNS	N	2.75x2.75	5	3.00x3.50	3.00x3.50	acdg	Zen	1 1/4	830	21 1/4	17	51		9
30	E	Spec	HG	AI	40	1.00x3.50	4	DFS	8	38	Spec	N	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Zen	1 1/2	820	21 1/4	25	51		10
30			HG	AI	98	1.37x3.87	4	Dur	8	38	CNS		2.00x1.50	7	2.50x1.31	2.50x2.12	abcdeg	Zen		940	21 1/4	25	47		11
30			HG	CI	86	1.37x3.87	4	Dur	12 1/4	68	CNS	N	2.00x1.50	7	2.50x1.31	2.50x1.87	acg	Hol		1700	24 1/2	27 3/4	68		12
45			HG	CI	104	1.37x4.12	4	Dur	12 1/4	68	CNS	N	2.25x2.37	7	2.75x3.25	2.75x2.12	acdg	Hol		1700	24 1/2	27 3/4	68		13
45			HG	CI	176	1.50x5.00	4	AS	13 1/4	164	CNS	N	2.12x2.75	7	2.62x5.00	2.62x4.00	acg	Hol		2435	24 1/2	29 3/4	78 1/4		14
45			HG	CI	176	1.50x5.12	4	AS	13 1/4	164	CNS	N	2.75x2.75	7	3.00x3.37	3.00x3.25	acdg	Hol		2460	24 1/2	29 3/4	78 1/4		15
45	E	Spec	HG	CI	204	1.50x	4	AS	13 1/4	172	CNS	N	2.75x2.75	7	3.00x3.50	3.00x3.50	abcdg	Zen(2)	1 3/4	2950	31 1/2	24	92		16
45	E	T-12	HG	AI	256	2.25x6.12	4	1040	15	336	1040	Y	5.00x2.15	2	5.00x2.15	5.00x2.15	abcdf	Own	1 3/4	2275	57 3/4	49	42 1/2	3	17
45	N		HG	AI	11 1/4	.750x2.46	3	1040	6 1/2	24	1040	Y	1.93x1.37	2	310 (9)	310 (9)	PS	Zen	3/4	350	16 1/2	19 1/2	24	4	18
45	E	T-12	HG	AI	46	1.00x2.93	3	1040	7 1/2	33	1045	Y	2.31x1.06	3	2.50x1.43	2.50x1.43	acdf	Zen	1	550	16 1/2	31	33	4, 5	19
45	E	T-12	HG	ACI	54	1.00x3.31	3	1045	7	60	1045	Y	2.37x1.50	3	2.43x1.62	2.46x1.75	acdf	Zen	1	580	20	30	35 1/4	4	20
45	E	T-12	HG	AI	34	1.00x3.43	4	1045	7 1/2	60	1045	Y	2.37x1.50	3	2.43x1.62	2.46x1.75	acdf	Zen	1	580	20	31	35 1/4	4, 2	21
45	E	T-12	HG	AI	34	1.00x3.43	4	1045	8	60	1045	Y	2.37x1.50	3	2.43x1.62	2.61x1.75	acdf	Zen	1	580	20	30	35 1/4	4, 2	22
45	E	T-12	HG	AI		1.50x4.31	4	1040	12		1045	Y	2.87x2.37	3	3.00x3.12	3.00x4.12	acdf	Zen	1 1/4	1645	23	43 1/2	45 1/2	1	23
45	E	T-12	HG	AI	200	1.75x6.12	4	1045	14	238	1045	N	3.50x3.75	3	3.93x5.25	3.93x5.25	acdf	Zen	2	2500	34	59	62	00, 0	24
45	E	T-12	HG	AI	200	1.75x6.12	4	1045	14	236	4140	N	3.50x3.75	4	3.93x5.25	3.93x5.25	acdf	Zen(2)	1 1/2	3750	43	59	83	00, 0	25
45	E	T-12	HG	AI	62	1.25x3.93	4	1040	8 1/2	52	4140	Y	2.75x1.25	5	3.25x1.12	3.25x1.12	acdf	Zen(2)	1 1/4	1300	30 1/2	39 1/4	37	1, 2	26
45	E	T-12	HG	AI	62	1.25x3.93	4	1040	8 1/2	52	4140	Y	2.75x1.25	5	3.25x1.12	3.25x1.12	acdf	Zen	2	1355	30 1/2	43	44 1/2	2	27
45	E	T-12	HG	AI	200	1.75x6.12	4	3140	15	••	1045	Y	3.50x3.75	3	3.93x5.25	3.93x5.25	acdf	Zen(2)	2	3900	45	65	64	00	28
45	E	T-12	HG	AI	200	1.75x6.12	4	3140	15	••	4140	N	3.50x3.75	4	3.93x5.25	3.93x5.25	acdf	Zen(4)	1 3/4	5300	45	65	78	00	29
45	E	T-12	HG	AI	256	2.25x6.37	4	1040	15	336	4140	Y	5.00x2.18	8	5.50x2.37	5.50x4.31	abcdf	Zen(4)	2	10300	49	75	99 1/2	00	30
(h)	Bo	Aus		Alt	51	1.12x4.44	4	6322	6 1/2	32	6415	N	2.12x1.44	3	2.38x5.11	2.38x1.60	acde	MaS	1 1/2	306	32.24	26.07	39.06		31
(h)	E	Nif	HG	AI	45.5	1.12x3.18	5	4130	10 1/4	60.5	1046		2.38x1.62	7	3.00x1.41	3.00x2.12	acdefg	Zen	1 1/4	910	28 1/2	35 1/4	44 1/2	3	32
(h)	E	Nif	HG	AI	52	1.12x3.45	5	4130	10 1/4	80.5	1046		2.38x1.62	7	3.00x1.41	3.00x2.12	acdefg	Zen	1 1/4	920	28 1/2	35 1/4	44 1/2	3	33
(h)	E	Nif	HG	AI	52	1.12x3.45	5	4130	10 1/4	64^	1046		2.38x1.63	7	3.00x1.41	3.00x2.12	acdefg	Zen	1 1/4	1056	29 1/2	36 1/4	46 1/2	3	34
(h)	E	Nif	HG	Alt	59	1.31x3.56	5	4130	11 1/4	90^	1046		2.75x.199	7	3.50x1.68	3.50x2.21	acdefg	Zen	1 1/4	1525	27.00	44.18	49.87	2, 3	35
(h)	E	Nif	HG	Alt	68	1.31x3.90	5	4130	10 1/4	90^	1046		2.75x1.71	7	3.50x1.68	3.50x2.21	acdefg	Zen	1 1/4	1555	28.25	43.75	49.87	2	36
(h)	E	Nif	HG	Alt	68	1.31x3.90	5	4130	10 1/4	90^	1046		2.75x1.71	7	3.50x1.68	3.50x2.21	acdefg	Zen	1 1/4	1555	29.50	43.50	47.13	2	37
(h)	E	Nif	HG	Alt	68	1.31x3.90	5	4130	10 1/4	90^	1046		2.75x1.71	7	3.50x1.68	3.50x2.21	acdefg	Zen	1 1/4	1594	28.25	45.18	49.87	2	38
(h)	E	Nif	HG	Alt	89	1.43x4.43	5	4130	11 1/4	113^	1046		3.00x1.90	7	4.00x1.57	4.00x2.25	acdefg	Zen	1 1/2	1833	28.06	51.75	53 1/2	1	39
(h)	E	Nif	HG	AI	52	1.12x3.45	5	4130	10 1/4	64	1046		2.37x1.62	7	3.00x1.40	3.00x2.12	acdefg	Zen	1 1/4	1100	28 1/2	36 1/4	46 1/2	3	40
(h)	E	Nif	HG	AI	89	1.43x4.43	5	4130	11 1/4	113	1046		3.00x1.90	7	4.00x1.57	4.00x2.25	acdefg	Zen(2)	1 1/2	1854	28.06	51 1/4	53 1/2	1	41
45	E	ACI	HG	CI	50	1.00x3.00	4	DFS	9	51	DFS	N	2.62x1.28	2	60RM02	3.00x2.18	acegt	MaS	1	u800	25 3/4	32 1/2	37 1/4	4	42
45	E	ACI	HG	CI	54	1.00x3.00	4	DFS	8 3/4	45	DFS	N	2.62x1.28	3	60RM02	3.00x2.18	acegt	MaS	1	u670	25 3/4	32 1/2	37 1/4	4	43
45	E	ACI	HG	CI	85	1.25x3.87	4	DFS	10	90	DFS	N	2.57x2.22	3	2.91x2.18	2.91x3.50	acdefgt	MaS	1 1/4	u1150	25 3/4	41 1/2	45 1/2	2	44
45	E	ACI	HG	CI	101	1.25x4.12	4	DFS	11 1/4	88	DFS	N	2.75x2.09	3	2.91x2.18	2.91x3.50	acdefgt	MaS	1 1/4	u1250	25 3/4	47 1/2	45 1/2	2	45
45	E	ACI	HG	CI	85	1.25x3.87	4	DFS	10	90	DFS	Y	2.57x2.22	4	2.91x2.18	2.91x3.50	acdefgt	Zen	1 1/2	u1800	29 3/4	45 1/2	59 1/4	2	46
45	E	ACI	HG	CI	108	1.25x4.25	4	DFS	11 1/4	91	DFS	Y	2.75x2.09	4	2.91x2.18	2.91x3.50	acdefgt	Zen	1 1/2	u1930	29 3/4	49 1/2	59 1/4	1	47
45	E	ACI	HG	CI	108	1.25x4.25	4	DFS	11 1/4	91	DFS	Y	2.75x2.09	4	2.91x2.18	2.91x3.50	acdefgt	Zen	1 3/4	6150	48 3/4	71	115 1/4		48
45	E	ACI	HG	CI	54	1.00x3.00	4	DFS	8 3/4	45	DFS		2.62x1.28	2	60RM02	SAE 70	cefg	MaS	1	625	33	34	31 1/2		49
30	N		HG	AI		.875x2.90	3	1035	7		3140;	N	2.00x1.25	7	2.50x1.31	2.50x1.93	ar**	Zen	1 1/2	720	25	23 1/4	45 1/2	6	50
30	N		HG	AI		.875x2.90	3	1035	7		3140;	N	2.00x1.25	7	2.50x1.31	2.50x1.93	ar**	Zen	1 1/2	750	25	23 1/4	45 1/2	6	51
30	N		HG	AI		1.00x3.50	3	1040	8		3140;	N	2.00x1.50	7	2.50x1.31	2.50x2.12	ar**	Zen	1 1/2	880	25	25	49 1/2	6	52
30	N		HG	AI		1.12x3.44	3	1035	8		3140;	Y	2.00x1.50	7	2.50x1.31	2.50x2.12	ar**	Zen	1 3/4	880	25	25	49 1/2	6	53
30	N		HG	Alt	25	.875x2.90	3	1035	7	26	3140		1.98x1.25	7	2.50x1.31	2.50x1.93	abcdeg	Zen	1 1/2	u750	25	23 1/4	43 1/4	6	54
45	N	CA	HG	CI	61 3/4	1.25x2.75	4	1045	6 3/4	31 1/2	1045	N	2.00x1.37	3	2.25x1.75	2.25x1.62	acdfg	MaS	1	451	18	27 1/2	30 7/8		55
45	E	CA	HG	CI	109	1.50x4.37	4	1040	12 1/4	145	1045	N	2.75x2.50	3	3.00x2.81	3.00x3.75	abcdg	MaS	1 1/4	1200	24 1/4	44	44 1/4		56
45	E	CA	HG	CI	109	1.50x4.37	4	1040	12 1/4	145	1045	N	2.75x2.50	3	3.00x2.81	3.00x3.75	abcdg	MaS	1 1/4	1200	24 1/4	44	44 1/4		57
45	N	CA	HG	CI	61 3/4	1.25x2.75	4	1045	6 3/4	31 1/2	1045	N	2.10x1.37	4	2.25x1.75	2.25x1.62	acdfg	MaS	1	602	18	29 1/2	39 1/2		58
45	N	CA	HG	CI	72	1.25x2.75	4	1045	6 3/4	40	1045	N	2.25x1.37	4	2.62x1.87	2.62x1.75	acdfg	MaS	1	664	18	31 1/4	41 1/2		59
45	N		HG	AI	14 1/2	.75x2.75	3	1040	8	23 1/2	AI		1 2 3x1.31	2	j	j	PS	Zen	3/4	u180	15	18 1/4	24		60
45	N		HG	AI	14 1/2	.75x2.75	3	1040	9	55	1045		2.00x2.12	2	2.00x3.00	2.00x2.50	PS	Zen	1	u345	19	22 1/2	32		61
30	N		HG	AI	28	.75x2.87	3	3140	6 1/16	23 1/2	CS‡		1.75x1.12	3	2.00x1.56	2.00x1.62	acd	Zen	1 1/4	u145	19	20 1/2	39		62
30	N		HG	AI	24 1/2	.875x3.06	3	1040	7	27 1/4	CS‡		2.00x1.25	7	2.50x1.31	2.50x1.93	acd	Zen	1 1/2	u745	19	25 1/4	50	4	63
30	N		HG	AI	39 1/2	1.00x3.62	3	1040	8	39	CS‡		2.00x1.50	7	2.50x1.31	2.50x2.12	acd	Zen	1 3/4	u945	20	26 1/4	54	4	64
45	N		SG	CI	164	1.23x4.75	3	1035	12	104	2340		2.00x2.12	5	2.00x4.00	2.00x4.00	PS	Zen	1 1/2	u1300	26	31	60		65
45	N		HG	CIA	64	1.10x3.25	3	1045	8 1/2	43	1045	N	1.50x2.12	2	1.50x3.00	1.50x3.00	Splash	Str	1	415	19 1/2	22 1/2	36 1/4		66
45	N		HG	AI	8	.625x2.12	3	1045	6	14	1045	N	1.56x1.25	2	ND3207	ND3207	adg	MaS	3/4	240	18 1/4	19 1/2	27 1/2		67
45	N		HG	CIA	19	.625x2.40	3	1045	8	27	1045	N	1.75x1.50	2	1.78x2.81	1.73x2.87	acg	Str	3/4	330	16 3/4	21 1/2	38 1/2		68
45	E	CA	HG	CI	30	.875x2.75	3	1045	7 1/2	29	1045	N	1.75x1.25	3	2.12x1.43	2.12x1.18	abcdg	Zen	1	490	21 3/4	24 1/2	35		69
45	E	CA	HG	CI	45	1.10x3.06	4	1045	8 3/4	46	1045	N	2.00x1.50	3	2.00x2.50	2.00x1.87	abcdg	Zen	1	610	19 1/2	28 1/2	41	5	70
45	N		HG	CIA	64	1.10x3.25	3	1045	8 1/2	43	1045	N	1.50x2.12	3	1.50x3.00	1.50x3.00	acg	Zen	1	620	19 1/2	22 1/2	48 1/4		71
45	N		HG	CIA	69	1.10x3.56	4	1045	10 3/4	66	1045	N	2.00x2.25	3	2.00x4.18	2.00x3.50	acg	Str	1 1/4	830	23 1/2	26 1/4	54 3/4		72
45	N		HG	CIA	89	1.10x3.93	4	1045	10 3/4	66	1046	N	2.00x2.25	3	2.00x4.18	2.00x3.50	acg	Str	1 1/2	830	20 1/4	26 1/2	54 3/4		73
45	N		HG	CIA	82	1.25x3.87	4	1045	11 3/4	87	1045	N	2.56x2.25	5	2.56x4.25	2.56x4.25	acdg	Str	1 1/2	1175	22 3/4	27 1/2	59 1/2		74
45	N		HG	CIA	126	1.43x4.68	4	1045	13 1/4	168	1045	N	2.56x3.00	5	2.62x4.50	2.62x4.50	abcdg	Str	2	1720	25 1/2	37 3/4	74 1/4		75
45	N		HG	CIA	150	1.43x5.25	4	1045	13 1/4	168	1045	N	2.56x3.00	5	2.62x4.50	2.62x4.50	abcdg	Str	2	1730	25 1/2	37 3/4	74 1/4		76
45	N		HG	CIA	190	1.43x5.50	4	1045	13 1/4	168	1045	N	2.56x3.00	5	2.62x4.50	2.62x4.50	abcdg	Str	2	1740	25 1/2	37 3/4	74 1/4		77
45	E	CA	HG	AI	46	1.00x3.85	4	1045	8	40	1045	N	2.00x1.50	7	2.62x2.00	2.62x1.25	abcdg	Zen	1 1/4	1016	22 1/2	29 1/4	53 1/4		78
45	E	CA	HG	AI	48	1.00x4.00	4	1045	8 3/4	48	1045	N	2.25x1.50	7	2.62x2.75	2.62x1.62	abcdg	Str	1 1/4	1185	20 1/4	27 3/4	57 1/4		79
45	N		HG	CIA	82	1.25x3.87	4	1045	11 3/4	87	1045	N	2.56x2.25	7	2.56x4.25	2.56x4.25	acdg	Str	1 1/2	1475	23 3/4	33 1/2	72 1/4		80
45	N		HG	CIA	106	1.25x4.31	4	1045	11 3/4	87	1045	N	2.56x2.25	7	2.56x4.25	2.56x4.25	acdg	Str	2	1565	24 1/2	33 1/4	72 3/4		81
45	N		HG	CIA	126	1.43x4.68	4	1045	13 1/4	168	1045	N	2.56x3.00	7	2.62x4.50	2.62x4.50	abcdg	Str	2	2330	27 1/2	37 3/4	91 3/4		82
45	N		HG	CIA	150	1.43x5.25	4	1045	13 1/4	168	1045	N	2.56x3.00	7	2.62x4.50	2.62x4.50	abcdg	Str	2	2360	27 1/2	37 3/4	91 3/4		83
45	N		HG	CIA	190	1.43x5.50	4	1045	13 1/4	168	1045	N	2.56x3.00	7	2.62x4.50	2.62x4.50	abcdg	Str	2	2380	27 1/2	37 3/4	91 3/4		84

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1952 AUTOMOTIVE

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinder	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Reo OA-331	T,B	6-4½x4½	140-3200	128-3200	331.0	6.40	280-1200 (EA)	W	In	I	(x)SII	2.01	1.80	1.83	1.62	.420	.420	.435	.434
2	OA-296	T,B	6-3⅞x4½	124-3300	110.5-3300	292.0	6.55	216-1400 (EA)	W	In	I	(x)SII	2.01	1.80	1.83	1.62	.420	.420	.435	.434
3	OA-255	T,B	6-3⅝x4½	107-3400	93-3400	255.0	6.70	183-1200 (EA)	W	In	I	2112	2.01	1.80	1.83	1.62	.420	.420	.435	.434
4	Scripps 36	M	4-3½x4		50-3200	134.0	5.50	100-2000 (EA)	N	In	L	SII	1.48	1.35	1.25	1.12	.250	.250	.310	.310
5	96-97	M	6-3½x4½		95-3000	230.0	7.20	187-1200 (EA)	N	In	L	SII	1.60	1.39	1.50	1.25	.311	.311	.310	.310
6	6-110	M	6-3½x4¼		110-3600	236.0	6.50	195-2400 (EA)	N	In	L	Aus	1.61	1.39	1.50	1.25	.311	.311	.310	.310
7	104-105	M	6-4x4½		110-3000	320.0	6.63	239-1700 (EA)	N	In	L	SII	1.75	1.62	1.50	1.37	.359	.359	.373	.373
8	6-330	M	6-4x4¼		140-3200	339.0	6.60	265-2000 (EA)	N	In	L	SII	1.63	1.67	1.72	1.50	.356	.356	.373	.373
9	152-153	M	6-4¼x5½		185-3000	447.0	7.10	390-1600 (EA)	N	Se	L	SII	2.37	2.25			.375	.375	.437	.437
10	154, 5, 6, 7	M	6-4¼x5½		155-3000	447.0	6.20	330-1600 (EA)	N	Se	L	SII	2.25	2.25			.375	.375	.437	.437
11	168-169	M	6-4½x5¾		175-2400	549.0	5.75	410-1600 (EA)	N	Se	L	SII	2.37	2.28			.405	.375	.437	.437
12	178-179	M	6-4¾x5¾		200-2400	611.0	5.75	500-1600 (EA)	N	Se	L	SII	2.37	2.28			.405	.375	.437	.437
13	208-209	M	8-3⅝5½		225-2400	678.0	6.25	540-1800 (EA)	N	Se	L	SII	2.50	2.37			.406	.375	.437	.437
14	V-48	M	8-3.18x3¾		100-3600	239.0	6.80	178-2200 (EA)	N	In	L	CNS	1.53	1.53	1.34	1.34	.292	.292	.341	.341
15	302-303	M	12-4¼x5½		350-2600	894.0	7.10	780-1600 (EA)	N	Se	L	SII	2.37	2.25			.375	.375	.437	.437
16	304-305	M	12-4¼x5½		250-2400	894.0	6.20	640-1700 (EA)	N	Se	L	SII	2.25	2.25			.375	.375	.437	.437
17	306-307	M	12-4¼x5½		290-2600	894.0	6.20	660-1800 (EA)	N	Se	L	SII	2.25	2.25			.375	.375	.437	.437
18	4-60	M	4-3½x4		60-3200	134.0			N	In	L	SII	1.48	1.35	1.25	1.12	.250	.250	.310	.310
19	6-158	M	6-4x4½		188-2400	339.0	7.50		N	In	L	SII	1.63	1.67	1.72	1.50	.356	.356	.373	.373
20	Sterling Viking II-TC-6	Tr,Ind	6-8x9		450-1200	2714.0	▲	2015-900 (EA)	W	So	I	SII	2.59	2.59			.556	.556	.557	.557
21	Viking II-TC-6	Tr,Ind	6-8x9		345-900	2714.0	▲	2015-900 (EA)	W	So	I	SII	2.59	2.59			.556	.556	.557	.557
22	Viking II-T-6	M	6-8x9		600-1200	3619.0	5.20	2685-900 (EA)	W	So	I	SII	2.59	2.59			.556	.556	.557	.557
23	Viking II-TC-8	Tr,Ind	8-8x9		600-1200	3619.0	▲	2685-900 (EA)	W	So	I	SII	2.59	2.59			.556	.556	.557	.557
24	Viking II-TC-8	Tr,Ind	8-8x9		460-900	3619.0	▲	2685-900 (EA)	W	So	I	SII	2.59	2.59			.556	.556	.557	.557
25	Petrel-LC-6	Ind	6-5½x6		210-2000	780.0	6.00	550-1700 (EA)	N	Se	L	SII	2.25	2.25			.475	.475	.437	.437
26	Petrel-L-6	M	6-5½x6		256-2500	780.0	6.00	550-1700 (EA)	N	Se	L	SII	2.25	2.25			.563	.563	.437	.437
27	Universal Fisherman-WM	M	1-4½x4½		8-1200	67.6	5.02		N	In	L	SII	1.87	1.87	1.62	1.62	.280	.280	.375	.375
28	Blue Jacket-AFTL	M	2-3x3½		12-2200	49.5	5.79		N	In	L	SII	1.68	1.68	1.50	1.50	.250	.250	.375	.375
29	Atomic Four-UJ	M	4-2½x3½		25-3500	84.5	6.32		N	In	L	SII	1.21	1.03	1.06	.875	.240	.240	.312	.312
30	Utility Four-BN	M	4-2¾x3		25-2500	95.0	4.70		N	In	L	SII	1.25	1.25	1.12	1.12	.234	.234	.312	.312
31	Blue Jacket Flexifour-BFA	M	4-3x3½		45-3800	99.0	6.54		N	In	L	SII	1.68	1.68	1.50	1.50	.312	.312	.375	.375
32	Superfour-LSG	M	4-3½x4½		80-3000	149.3	5.70		N	Se	L	SII	1.56	1.56	1.37	1.37	.312	.312	.375	.375
33	Blue Jacket Six-AMS	M	6-3x3½		60-3500	148.5	6.54		N	In	L	SII	1.68	1.68	1.50	1.50	.312	.312	.375	.375
34	Cruiser Six-HCS	M	6-3½x4½		90-3000	260.0	6.25		N	Se	L	SII	1.68	1.68	1.50	1.50	.337	.337	.375	.375
35	Sea Lion Six-LHS	M	6-3½x4½		110-3400	260.0	6.25		N	Se	L	SII	1.68	1.68	1.50	1.50	.337	.337	.375	.375
36	Super Six-Commodore-Z	M	6-4x4½		145-3200	339.2	7.20	265-2000	N	In	L	Aus	1.63	1.67	1.72	1.50	.356	.356	.373	.373
37	Super Six-Stevedor-ZS	M	6-4x4½		130-2800	339.2			N	In	L	Aus	1.63	1.67	1.72	1.50	.356	.356	.373	.373
38	Vimalert V-1700	M	12-5½x6		1000-2600	1710.0	6.65	2020-2600 (EA)	W	So	I	R48	2.00	1.75	1.86	1.37	.538	.533	.622	.622
39	Waukesha (12) ICK	Ind	4-2½x3½	18-2600	14-2000	61.3	5.70	40-1700 (BE)	N	Se	L	SII	1.12	.937	1.00	.812	.226	.250	.312	.312
40	(12) FC	T,Tr,Ind	4-3¼x4	32-2800	24-1800	133.0	5.58	85-1200 (BE)	N	In	L	SII	1.34	1.34	1.18	1.18	.281	.281	.312	.312
41	(12) XAH	T,Ind	4-3⅝x4½	43-2200	36-1800	185.0	5.50	120-900 (BE)	N	In	L	SII	1.58	1.58	1.37	1.37	.302	.275	.375	.375
42	190GL	T,Tr,Ind	6-3⅜x4	61-1800	61-1800	265.0	6.70	210-900 (BE)	W	In	I	SII	1.40	1.28	1.25	1.12	.359	.375	.375	.375
43	(11) 6BZ	T,B,Ind	6-4x4½	105-3000	89-3000	320.0	5.75	235-1000 (BE)	N	In	L	SII	1.68	1.43	1.50	1.25	.375	.375	.375	.375
44	(11) 140-GK	T,B,Ind	6-4¼x5½	142-2250	127-2250	525.0	6.00	425-1000 (BE)	W	In	L	SII	2.12	1.96	1.87	1.37	.531	.434	.434	.434
45	(11) *SRKR	T,B,Ind	6-4¼x5½	126-2250	108-2250	517.0	5.50	360-600 (BE)	N	Se	L	SII	2.16	1.66	1.87	1.37	.386	.375	.375	.375
46	(11) 145-GK	T,B,Ind	6-5½x6	186-2000	172-2000	779.0	6.40	590-1200 (BE)	W	In	I	SII	2.37	1.94	2.12	1.62	.594	.531	.500	.500
47	(12) 6WAK	T,B,Ind	6-6½x8½	235-1800	193-1300	1197.0	5.20	865-900 (BE)	W	In	I	SII	2.66	2.22	2.37	2.02	.656	.596	.500	.500
48	(12) 6NK	Ind	6-7x8½	221-1050	200-950	1962.0	5.50	1330-800 (BE)	W	In	I	SII	2.94	2.53	2.50	2.25	.718	.718	.562	.562
49	(12) 6LRO	Ind	6-8½x8½	430-1050	374-900	2894.0	6.60	2260-800 (BE)	W	Se	I	SII	3.50	3.00	3.25	2.75	.750	.840	.562	.562
50	(11) 145GZ	T,B,Tr,Ind	6-5½x6	220-2000	206-2000	817.0	6.00	615-1200 (BE)	W	In	I	SII	2.37	1.84	2.12	1.62	.594	.531	.497	.496
51	6MZA	T,B,Ind	6-4¼x4½	128-2800	113-2800	404.0	5.90	290-1000 (BE)	N	In	L	SII	1.93	1.68			.375	.375	.375	.375
52	**(11) 140GKB	T,B,Tr,Ind	6-4¼x5½	178-2800	158-2800	525.0	6.40	435-800 (BE)	W	In	I	SII	2.12	1.56	1.87	1.37	.540	.540	.437	.437
53	**(11) 140GZB	T,B,Tr,Ind	6-4¼x5½	188-2600	171-2600	554.0	6.40	451-1000 (BE)	W	In	I	SII	2.12	1.86	1.87	1.37	.524	.524	.437	.437
54	**(11) 145GKB	T,B,Tr,Ind	6-5½x6	225-2400	207-2400	779.0	6.20	595-1400 (BE)	W	In	I	SII	2.56	2.03	2.31	1.81	.600	.600	.500	.500
55	180GL	T,Tr,Ind	4-3½x3¾	38-2000	31-2000	144.0	6.80	105-800 (EA)	W	In	I	SII	1.31	1.13	1.18	1.00	.312	.281	.372	.372
56	**(11) 195GKA	T,Tr	6-4¼x4	122-3000	110-3000	320.0	6.20	230-1800 (EA)	N	In	I	SII	1.84	1.59	1.69	1.44	.406	.411	.372	.372
57	195GK	T,B,Tr,Ind	6-4¼x4	105-2400	96-2400	320.0	6.20	232-1500 (EA)	N	In	I	SII	1.84	1.59	1.69	1.44	.406	.411	.372	.372
58	135GZ	T,B,Tr,Ind	6-4½x5	150-2900	135-2800	451.0	6.00	320-1400 (EA)		In	I	SII	2.06	1.81			.452	.405	.434	.434
59	White 116A	T	6-3¼x4½	110-3100		298.0	6.66	230-1200 (BE)	N	In	L	CNS	1.97	1.63	1.75	1.49	.381	.381	.373	.373
60	120A	T	6-3⅞x4½	114-3000		318.0	6.50	250-1200 (BE)	N	In	L	SII*(x)	1.97	1.63	1.75	1.49	.381	.381	.373	.432
61	130A	T	6-4x4½	120-3000		340.0	6.60	270-1200 (BE)	N	In	L	SII*(x)	1.97	1.63	1.75	1.49	.381	.381	.373	.432
62	140A	T	6-3⅞x5½	125-3000		362.0	6.03	285-1400 (BE)	N	In	L	SII*(x)	1.97	1.63	1.75	1.49	.381	.381	.373	.432
63	150A	T	6-4x5½	135-3000		386.0	6.45	315-1300 (BE)		In	L	SII*(x)	1.97	1.63	1.75	1.49	.381	.381	.373	.432
64	260A	T	6-4½x5	170-2800		451.0	6.25	350-1200 (BE)	N	In	L	SII*(x)	2.35	1.88	1.99	1.75	.423	.423	.434	.432
65	280A	T	6-4½x5	184-2800		504.0	6.50	405-1200 (BE)	N	In	L	SII*(x)	2.35	1.88	1.99	1.75	.423	.434	.434	.432
66	(H) 280TA	B	6-4½x5	175-2700		504.0	6.00	400-1200 (BE)	N	In	L	SII*(x)	2.35	1.88	1.99	1.75	.423	.423	.434	.432
67	(H) 24AK	B	12-4¼x4¼	210-2700		681.0	6.00	500-1200 (BE)	D	In	L	SII*(x)	1.85	1.76	1.62	1.62	.381	.381	.401	.432
68	250A	T	6-4x5½	147-3000		386.0	6.75	330-1200 (BE)	N	In	L	SII	1.97	1.63	1.75	1.49	.400	.381	.373	.432
69	Willys CJ-3A	C,T,Ind	4-3½x4½	63-4000		134.2	6.48	105-2000 (BE)	N	In	L	CHS	1.53	1.46	1.34	1.28	.359	.359	.373	.373
70	473	C,T,Ind	4-3½x4½	72-4000		134.2	7.40	114-2000 (BE)	N	In	F	(o)	2.00	1.46	1.84	1.28	.260	.351	.374	.372
71	673	C	6-3½x3½	75-4000		161.0	6.90	125-2000 (BE)	N	In	L	(o)	1.37	1.28	1.12	1.12	.294	.300	.341	.340
72	Wisconsin TE	Tr,Ind	2-3x3½	11.2-2600	11.2-2600	45.9	4.60	27-1600 (EA)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
73	TF	Tr,Ind	2-3¼x3¼	13.3-2600	13.3-2600	53.9	4.67	32.5-1600 (EA)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
74	VE-4	Tr,Ind	4-3x3½	22-2600	22-2600	91.9	4.60	50-1600 (EA)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
75	VF-4	Tr,Ind	4-3¼x3¼	25-2400	25-2400	107.7	4.67	57-1600 (EA)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
76	VP-4	Tr,Ind	4-3½x4	31-2200	31-2200	154.0	4.60	88-1400 (EA)	N	Se	L	Aus	1.56	1.56	1.37	1.37	.275	.275	.309	.309
77			For other W	isconsin e	ngines se	e	SM	ALL	GASOLINE EN	GIN	ES	tab	le....							
78	Zephyr 11	Tr,Ind	1-2½x2¼		3.5-3200	11.0	6.50	6-3000 (EA)		In	L	2112	1.17	1.04	1.05	.925	.235	.235	.314	.313
79	22	Tr,Ind	2-2½x2¼		6-3200	22.1	6.75	12.5-3000 (EA)		In	L	2112	1.17	1.04	1.05	.925	.235	.235	.314	.313
80	44	Tr,Ind	4-2½x2¼		18-3200	44.2	7.00	25-3000 (EA)		In	L	2112	1.17	1.04	1.05	.925	.235	.235	.314	.313
81	66	Tr,Ind	6-2½x2¼		27-3200	66.3	7.00	37.5-3000 (EA)		In	L	2112	1.17	1.04	1.05	.925	.235	.235	.314	.313
82	88	Tr,Ind	8-2½x2¼		36-3200	88.4	7.00	50-3000 (EA)		In	L	2112	1.17	1.04	1.05	.925	.235	.235	.314	.313

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GASOLINE ENGINES—*concluded*

Angle (Deg.)	Valves: Seats: Inserts Used?	Valves: Seats: Insert Material (S.A.E. No.)	Camshaft Drive—Type	Pistons: Material	Pistons: Weight with Pins, Rings, Bushings (Oz.)	Pistons: Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Connecting Rods: Material	Connecting Rods: Center to Center Length (In.)	Connecting Rods: Weight with Bushing and Cap (Oz.)	Crankshaft: Material	Crankshaft: Counter Balance Used	Crankshaft: Crank-Pin Diameter and Length (In.)	Crankshaft: Main Bearings: Number	Crankshaft: Main Bearings: Diameter and Length (In.) Front	Crankshaft: Main Bearings: Diameter and Length (In.) Rear	Oil Pressure to—	Carburetor: Make	Carburetor: Size	Engines Weight without Carburetor or Ignition (Lb.)	Overall Dimensions (In.): Width	Overall Dimensions (In.): Height	Overall Dimensions (In.): Length	Clutch Housing (S.A.E. Nos.)	Line Number
30	E	St	HG	Al	40	1.12x3.59	4	1340	7¼	56	1045	...	2.18x1.62	7	2.51x1.62	2.51x1.62	acdf	Zen	1¼	672	25½	34½	45A	3	1
30	E	St	HG	Al	34.7	1.12x3.59	4	1340	7¼	56	1045	...	2.18x1.62	7	2.51x1.62	2.51x1.62	acdf	Zen	1¼	830	25½	34½	45A	3	2
30	E	Ste	HG	Al	31.9	1.12x3.11	4	1340	7¼	56	1045	...	2.18x1.62	7	2.51x1.62	2.51x1.62	acdfg	Car	...	820	25½	34½	45A	3	3
30	N	...	HG	Al	29.5	.750x2.81	3	3140	6⅞	21	1045	N	1.75x1.12	3	2.00x1.56	2.00x1.62	acgr	Zen	1¼	410*	22½	21¾	32¾	6	4
30	N	...	HG	Al	26	.875x2.90	4	CS	7	26	CS	N	2.00x1.25	7	2.50x1.31	2.50x1.93	acgr	Zen	1½	675*	22⅝	23¼	41½	4	5
30	N	...	HG	Al	26	.875x2.92	3	1035	7	26	AS	...	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Zen	1½	675	22⅝	23¼	41½	4	6
45	N	...	HG	Al	29.5	1.00x3.51	4	1040	8	37	1045	N	2.00x1.50	7	2.50x1.31	2.50x2.12	acgr	Zen	1⅝	860*	22⅝	32⅝	48‡‡	4‡	7
30	N	...	HG	Al	49	1.12x3.44	4	AS	8	39.2	CS	Y	2.00x1.50	7	2.50x1.31	2.50x2.12	acgr	Zen	1¾	890*	22⅝	32⅝	48‡‡	4	8
45	E	CA	HG	Al	49	1.25x3.66	4	AS	10⅞	70	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	acdr	Hol	2	1050*	27¾	32⅞	66¾	...	9
45	E	CA	HG	Al	49	1.25x3.66	4	AS	10⅞	70	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.26	acdr	Str	2	1150*	24¼	29½	56¾	...	10
45	N	...	HG	Al	50	1.37x3.84	4	AS	11⅛	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	acdr	Zen	2	1525*	29¼	33½	66	...	11
45	N	...	HG	Al	56	1.37x4.00	4	AS	11⅛	84	NS	Y	2.87x2.00	4	3.00x3.00	3.00x3.62	acdr	Zen	2	1525*	29¼	33½	66	...	12
45	N	...	HG	Al	56	1.37x4.00	4	AS	11⅛	84	CS	Y	2.87x2.25	4	3.00x3.00	3.00x3.62	acdr	Zen(2)	2	1525*	29¼	33½	66	...	13
45	Bo	MCS	HG	CAS	13.5	.750x2.84	3	DFS	7	18	CAS	Y	2.14x1.75	3	2.50x1.37	2.00x1.96	acd	Hol	1	700*	23½	32⅞	43A	...	14
45	E	CA	HG	Al	49	1.25x3.68	4	AS	10⅞	1644	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.26	acdr	Hol	2	1750*	35	33½	66½	...	15
45	E	CA	HG	Al	49	1.25x3.68	4	AS	10⅞	1644	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.26	acd	Str(2)	2	1750*	33¼	30½	66½	...	16
45	E	CA	HG	Al	49	1.25x3.66	4	AS	10⅞	1644	NS	Y	2.75x2.25	4	3.25x2.25	3.25x2.25	acd	Str(2)	2	1750*	33¼	30½	66½	...	17
30	N	...	HG	Al	29.5	.75x2.80	3	3140	6⅞	21	1045	...	1.75x1.12	3	2.00x1.56	2.00x1.62	acdeg	Zen	1¼	410	22½	32⅝	...	6	18
30	N	...	HG	Al	49	1.12x3.44	4	...	8	39.2	...	...	2.00x1.50	7	2.50x1.31	2.50x2.12	acdeg	Zen	1¾	890	...	32⅝	46‡‡	6	19
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2½	7500	45	64⅞	100⅞	00	20
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2½	7500	45	64⅞	100⅞	00	21
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2½	9900	44⅞	61⅝	142⅝	...	22
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2½	9000	45	64⅞	121⅝	00	23
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2½	9000	45	64⅞	121⅝	00	24
45	E	T-12	HG	Al	91	1.43x4.37	5	1035	12½	113	CNS	...	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdeg	Zen(2)	1¾	2300	33	41½	89½	1	25
45	E	T-12	HG	Al	91	1.43x4.37	5	1035	12½	113	CNS	...	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdeg	Zen(2)	1¾	1900	33	34½	73⅝	...	26
45	N	...	HG	CI	...	1.00x3.75	3	AI	8½	...	CS	Y	2.00x2.00	2	2.00x2.00	2.00x2.00	Splash	Zen	⅞	200	15⅞	24⅝	17⅞	...	27
45	N	...	HG	Al	15	.750x2.56	4	CS	7¼	26	CS	Y	1.75x1.37	2	1.75x1.87	1.75x2.00	acdg	Zen	⅞	300	20⅞	22⅝	28¼	...	28
45	N	...	HG	Al	...	.688x2.16	3	CS	6	...	CS	Y	1.56x1.23	2	1.99x1.62	1.99x1.25	acdgr	Zen	⅞	280	17⅛	19	28½	...	29
45	N	...	HG	CI	19	.625x2.44	3	CS	7½	22	CS	N	1.50x1.75	2	1.50x2.75	1.50x2.75	acdg	Zen	1	347	17⅞	21½	34‡‡	...	30
45	N	...	HG	Al	15	.750x2.56	4	AI	7¼	18	CS	N	1.75x1.37	3	1.75x2.37	1.75x2.37	acdgr	Zen	1¼	438	20⅛	22⅝	34‡‡	...	31
45	N	...	HG	Al	20	.875x2.75	4	AI	8½	30	CS	N	2.00x1.75	3	2.00x2.50	2.00x2.50	acd	Zen	1¼	524	18½	25¼	39½	...	32
45	N	...	HG	Al	16	.750x2.56	4	AI	7¼	18	CS	Y	1.75x1.37	4	1.75x2.50	1.75x2.00	acdg	Zen	1¼	529	24	20⅝	43½	...	33
45	N	...	HG	Al	28	.875x3.00	4	AI	8½	28	CS	N	2.00x1.75	7	2.00x3.00	2.00x1.78	acdg	Str	1½	785	20½	28⅝	49‡‡	...	34
45	N	...	HG	Al	28	.875x3.00	4	AI	8½	28	CS	N	2.00x1.75	7	2.00x3.00	2.00x1.75	acdg	Str	1½	810	22½	28⅝	49‡‡	...	35
30	N	...	HG	Al	...	1.12x3.44	4	1035	8	39.2	1046‡	Y	2.00x1.50	7	2.50x1.12	2.50x1.31	acr	Zen	1¾	840	25	25½	45¾	...	36
30	N	...	HG	Alt	...	1.12x3.44	4	1035	8	39.2	1046‡	Y	2.00x1.50	7	2.50x2.12	2.50x1.31	acr	Zen	...	840	25	25½	45¾	...	37
(h)	Y	Spec	...	4145	67	1.44x2.21	5	6415	10	‡‡	6415	Y	3.00x2.37	7	3.75x1.31	3.75x1.31	acd	Str	...	2475	45½	58⅞	99	...	38
45	N	...	HG	Al	8	.625x2.12	4	1045	8	14	1045	N	1.56x1.25	2(9)	ND1207	ND1207	ad	Op	⅝	143	14⅛	20½	21⅛	6	39
45	E	CA	HG	CI	30	.875x2.75	4	1045	7¼	29	1045	N	1.75x1.06	3	2.12x1.18	2.12x1.43	abcdg	Op	1	290	19	26¾	27¼	...	40
45	E	CA	HG	CI	45	1.12x3.03	4	1045	8¾	46	1045	N	2.00x1.50	3	2.00x1.87	2.00x2.50	abcdg	Op	1	385	17⅞	27	32½	5	41
44½	E	N	HG	CI	...	1.25x3.00	4	1045	8¾	...	1045	N	2.25x1.37	4	2.62x1.75	2.62x1.75	abcdfg	Op	1½	...	22	29½	42½	3	42
45	E	CA	HG	Al	46	1.00x3.85	4	1045	8	40	1945	N	2.00x1.50	7	2.62x1.25	2.62x2.00	abcdg	Op	1½	706	19½	31	39½	3	43
(h)	E	CA	HG	Al	64	1.37x3.87	4	1045	10¼	85	1045	N	2.62x2.00	7	3.25x1.75	3.25x3.00	abcdfg	Op	1⅝	1390	23½	41‡‡	50⅝	3	44
30	E	CA	HG	Al	70	1.37x4.25	4	1045	10¼	83	1045	N	2.75x1.75	7	3.00x1.87	3.00x3.00	abcdg	Op	1⅝	1225	24½	39⅝	48‡‡	3	45
(h)	E	CA	HG	Al	107	1.62x4.87	4	1045	11¼	133	1045	N	3.00x2.25	7	3.50x2.00	3.50x3.50	abcdfg	Op	2	1810	25¼	48¾	55‡‡	2	46
(h)	E	CA	HG	CI	292	1.87x5.50	4	1045	13¼	196	1045	N	3.37x2.37	7	4.00x2.56	4.00x3.56	abcdfg	Op	2½	3050	30½	80½	65½	0	47
(h)	E	CA	HG	CI	304	2.00x8.00	4	1045	15¾	314	1045	N	3.25x2.75	7	3.75x3.75	3.75x5.50	abcdfg	Op	2½	5900	31‡‡	61‡‡	76½	00	48
30	E	CA	HG	CI	776	2.25x7.75	5	1045	18¾	474	1045	N	4.00x3.75	7	4.25x4.81	4.25x5.50	abcdfg	Op(2)	2½	9200	48½	66	96½	00	49
(h)	E	TS	HG	Al	110	1.62x4.50	4	1045	11¼	133	1045	N	3.00x2.25	7	3.50x2.00	3.50x5.50	abcdfg	Op	1¾	1810	25½	48⅝	55‡‡	2	50
45	E	CA	HG	Al	45	1.00x4.00	4	1045	8¾	46	1045	N	2.25x1.50	7	2.62x1.62	2.62x2.75	abcdg	Op	1⅝	920	20½	34⅝	43‡‡	3	51
(h)	E	TS	HG	Al	64	1.37x3.87	4	1045	10¼	85	C1046	Y	2.62x2.00	7	3.25x1.56	3.25x3.00	abcdfg	Op	1⅝	1390	23½	41‡‡	50⅝	3	52
(h)	E	TS	HG	Al	67	1.37x3.87	4	1045	10¼	85	C1046	Y	2.62x2.00	7	3.25x1.56	3.25x3.00	abcdfg	Op	1⅝	1390	23½	41‡‡	50⅝	3	53
(h)	E	TS	Al	103	1.62x4.50	4	1045	11¼	...	C1046	Y	3.50x2.00	7	3.50x2.00	3.50x3.50	abcdfg	Op	2	1810	25¼	48⅝	57½	2	54
44½	N	CI	***55‡	1.25x2.75	4	1045	8¾	31½	...	1045	...	2.00x1.38	3	2.25x1.75	2.25x1.62	acdg	Op	1	450	19	27‡‡	30¼	4	55
44½	E	St	HG	Al	***42‡	1.25x3.44	4	1045	8¾	47½	1045	Y	2.62x1.38	4	2.62x1.88	2.62x1.75	abcd	Op	1⅝	775	20	29	44½	3	56
44½	E	St	HG	Al	***42‡	1.25x3.44	4	1045	8¾	47½	1045	Y	2.62x1.38	4	2.62x1.88	2.62x1.75	abc	Op	1⅝	775	20	29	44½	3	57
45	E	Ste	HG	Al	...	1.50x3.62	4	1045	9½	...	1046	...	3.00x1.62	7	3.25x ...	3.25x ...	abcdfg	Op	...	...	26	33	48	2, 3	58
45	E	St	HG	Al	39	1.18x3.31	4	1040	9‡‡	58	1050‡	Y	2.18x1.34	7	3.00x1.94	3.00x1.93	abcdg	Str	1¼	1075	29⅝	40⅝	44¼	3	59
45	E	St	HG	Al	41	1.00x3.46	4	1040	9‡‡	52	1050‡	Y	2.18x1.34	7	3.00x1.94	3.00x1.93	abcdfg	Str	1¼	1070	29⅝	40⅝	44¼	3	60
45	E	St	HG	Al	44	1.18x3.62	4	1040	9‡‡	58	1050‡	Y	2.18x1.34	7	3.00x1.94	3.00x1.93	abcdfg	Str	1¼	1075	29⅝	40⅝	44¼	3	61
45	E	St	HG	Al	41	1.00x3.46	4	1040	9‡‡	52	1050‡	Y	2.18x1.34	7	3.00x1.94	3.00x1.93	abcdfg	Str	1¼	1070	29⅝	40⅝	44¼	3	62
45	E	St	HG	Al	44	1.18x3.62	4	1040	9½	52	1050‡	Y	2.18x1.34	7	3.00x1.94	3.00x1.93	abcdfg	Hol	1¼	1070	29⅝	40⅝	44¼	3	63
45	E	Spec*	HG	Al	54	1.24x3.93	4	3130	9¼	75	1050	Y	2.50x2.06	7	3.25x1.68	3.25x2.00	abcdgpe	Hol	1½	1408*	34	37	51	2	64
45	E	Spec*	HG	Al	62	1.24x3.93	4	3130	9¼	75	1050	Y	2.50x2.06	7	3.25x1.68	3.25x2.00	abcdgpe	Hol	1½	1442*	34	37	51	2	65
45	E	St	HG	Al	62	1.24x3.75	5	3130	9¼	79	1050‡	Y	2.50x1.81	7	3.25x1.68	3.25x2.00	abcdfg	Zen‡	1½	1721	55	20	64	1	66
(h)	E	St	HG	Al	44	1.18x3.62	5	1040	8¾	83	1050‡	Y	2.43x2.31	7	2.87x2.09	2.87x2.40	abcdfg	Zen‡	1½	2080	55	21	70	1	67
45	E	St	HG	Al	46.5	1.18x3.62	4	3130	9‡‡	58	1050‡	...	2.18x1.34	7	3.00x1.94	3.00x1.93	abcdg	Hol	1¼	1075	29⅝	40⅝	44¼	3	68
45	N	...	HG	Al	19	.812x2.78	3	1035	9¾	34	1040	Y	1.93x1.30	3	2.33x1.92	2.33x1.75	acdg	Car	1¼	344	19	26⅝	28¼	...	69
45	N	...	HG	Alt	19	.812x2.78	3	1141	9¾	34	1040	...	1.94x1.31	3	2.33x1.92	2.33x1.75	acdf	Car	1¼	390	19½	30¼	28	5	70
45	N	...	HG	Alt	15.1	.750x2.66	3	1141	6‡‡	22	1040	...	.750x2.66	4	2.25x1.30	2.25x1.41	acd	Zen	1¼	406	21	28¼	31	6	71
45	Y	MI	HG	Al	16	.750x2.56	4	1035	8½	22	1045	Y	1.75x1.12	2	Timken	Timken	PJ	Zen	⅝	220*	16⅞	22⅞	22⅞	...	72
45	Y	MI	HG	AS	18¼	.750x2.56	4	1035	8½	22	1045	Y	1.75x1.12	2	Timken	Timken	PJ	Zen	⅝	220*	16⅞	22⅞	22⅞	...	...
45	Bo	MI	HG	Al	16	.750x2.56	4	1035	8½	22	1045	N	1.75x1.12	2	Timken	Timken	PJ	Zen	⅝	295*	21½	25⅛	25⅛	...	...
45	Bo	MI	HG	Al	18.2	.750x2.56	4	1035	8½	22	1045	N	1.75x1.12	2	Timken	Timken	PJ	Zen	⅝	295*	21½	25⅛	25⅛	...	73
45	E	St	HG	Al	28	.937x2.75	4	1035	8½	29	1045	N	1.88x1.25	2	Timken	Timken	PJ	MaS	1	418*	24	25⅝	28¼	...	76
								For other Wisconsin engines see SMALL GASOLINE ENGINES table																77
...	...	...	Al	...	.625	...	4	DFS	...	...	ACI	...	1.375	...	...	...	acdg	Til	...	...	...	...	...	...	78
...	...	...	Al	...	.625	...	4	DFS	...	...	ACI	...	1.375	...	...	...	acdg	Str	...	...	...	...	...	...	79
...	...	...	Al	...	.625	...	4	DFS	...	...	ACI	...	1.375	...	...	...	acdg	MaS	...	...	...	...	...	...	80
...	...	...	Al	...	.625	...	4	DFS	...	...	ACI	...	1.375	...	...	...	acdg	MaS	...	...	...	...	...	...	81
...	...	...	Al	...	.625	...	4	DFS	...	...	ACI	...	1.375	...	...	...	acdg	Zen	...	...	...	...	...	...	82

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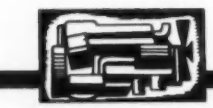


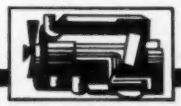
1952 AUTOMOTIVE

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL: Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio — to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.) ♣	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	VALVES: Arrangement	VALVES: Intake Port Diameter and Lift (In.)
1	Atlas 45		I,M	DI	4 9x10½	W	4	2672			192 750	14.00	850	76	68.0		13000	15100	HI	3.25-.875
2	45		I,M	DI	5 9x10½	W	4	3340			242 750	14.00	850	76	58.0		14000	16100	HI	3.25-.875
3	45		I,M	DI	6 9x10½	W	4	4008			290 750	14.00	850	76	50.0		17100	20000	HI	3.25-.875
4	*45		I,M	DI	6 9x10½	W	4	4008			435 750	13.00	900	115	42.5		18500	20800	HI	3.25-.875
5	45		I,M	DI	8 9x10½	W	4	5344			385 750	14.00	850	76	56.1		21600	24500	HI	3.25-.875
6	*45		I,M	DI	8 9x10½	W	4	5344			580 750	13.00	900	115	39.3		22800	25600	HI	3.25-.875
7	Buda 1BD-3	Lanova	I	Ach	1 3⅛x4½	W	4	38	8.5 2000	7 2000	6.5-1800	15.30	725	75		24.5 1400			VI	1⅝-.490
8	2BD-77	Lanova	M,I	Ach	2 3⅛x4½	W	4	77	17 2000	15.5 2000	13-1800	15.30	725	74	46.1	49 1400	600	820	VI	1⅝-.429
9	4BD-153	Lanova	Tr,M,I	Ach	4 3⅛x4½	W	4	153	40 2400	35 2400	27 2000	15.30	725	70	28.2	104 1400	780	1000	VI	1⅝-.429
10	4BD-182	Lanova	Tr,M,I	N	4 4⅝x4½	N	4	182	48.5 2400	40 2400	31-1800	15.00	725	75		122 1400			VI	1⅝-.429
11	6BD-230	Lanova	T,Tr,M,I	Ach	6 3⅛x4½	W	4	230	60 2400	52 2400	40 1800	15.30	725	76	21.5	156 1400	860	1200	VI	1⅝-.429
12	6BD-272	Lanova	M,T,I	Ach	6 3⅜x4½	N	4	273	75 2400	65 2400	50-1800	15.00	725	80		197 1300			VI	1⅝-.429
13	6-DT-317	Lanova	T,Tr,B,I	Ach	6 3½x5½	D	4	317	90 2300	75 2300	56 1800	14.50	725	78	20.3	224 1500	1133		VI	1⅝-.426
14	6-DTM-317	Lanova	M	Ach	6 3½x5½	D	4	317	90 2300	75 2100	56 1800	14.50	725	78	22.3	224 1500		1250	VI	1⅝-.486
15	6-DT-468	Lanova	T,Tr,B,I	Ach	6 4½x5½	D	4	468	113 2000	97 2000	75 1600	14.20	725	79	19.1	268.5 1100	1435		VI	1.59-.486
16	6-DTM-468	Lanova	M	Ach	6 4½x5½	D	4	468	113 2000	97 1800	75 1600	14.20	725	79	23.7	308 1100		1775	VI	1.59-.476
17	6DA-779	Lanova	T,B,Tr	Ach	6 5½x6½	W	4	779	185 2100	167 2000	143 800	14.20	175	80.5		540 1400			VI	2.00-.540
18	6DA-844	Lanova	T,Tr,B,I	Ach	6 5½x6½	W	4	844	215 2100	194 2000	166-1800	14.2	725	86.5	17.2	640 1500	2850		VI	2.00-.590
19	6DC-1879	Lanova	R,I	Ach	6 6⅝x8¾	W	4	1879	248 1100	222 1100	171 900	13.00	725	80	40.6	1330 650	6950		VI	2.50-.687
20	6DCM-1879	Lanova	M	Ach	6 6⅝x8¾	W	4	1879	248 1100	222 1100	186 1000	13.00	725	78	34.9	1330 650		6500	VI	2.50-.687
21	6-PH-D1879	Lanova	I	Ach	6 6⅝x8¾	W	4	1879	248 1100	222 1100	171 900	13.00	725	80	52.6	1330 650	9000		VI	2.50-.687
22	6DAM-844	Lanova	M	Ach	6 5½x6½	W	4	844	215 2100	194 2000	166 1800	14.2	725	86.5	23.5	640 1500		3900	VI	2.00-.540
23	6DAS-844	Lanova	T,B,Tr,I	Ach	6 5½x6½	W	4	844	280 2100	246 2000	180 1600	12.8	725	106		780 1500			VI	2.00-.540
24	6DASM-844	Lanova	M	Ach	6 5½x6½	W	4	844	280 2100	246 2000	180 1600	12.8	725	106		780 1500			VI	2.00-.540
25	8DA-1125	Lanova	T,R,I	Ach	8 5½x6½	W	4	1125	288 2100	236 2000	187 1600	14.2	725	82.5		830 1300			VI	2.00-.540
26	8DAM-1125	Lanova	M	Ach	8 5½x6½	W	4	1125	288 2100	236 2000	187 1600	14.2	725	82.5		830 1300			VI	2.00-.540
27	8DAS-1125	Lanova	T,Tr,I	Ach	8 5½x6½	W	4	1125	350 2100	312 2000	220 1600	12.8	725	97		1040 1400			VI	2.00-.540
28	8DASM-1125	Lanova	M	Ach	8 5½x6½	W	4	1125	350 2100	312 2000	220 1600	12.8	725	97		1040 1400			VI	2.00-.540
29	4DC-645	Lanova	I	Ach	4 5½x6½	W	4	645	145 1800	127 1800	97 1400		725	85		484 1100			VI	2.00-.540
30	*6DCS-1879	Lanova	I	Ach	6 6⅝x8¾	W	4	1879	330 1200	292 1200	212 900		725	99		1580 700			VI	2.50-.687
31	*6DCSMR-1879	Lanova	M	Ach	6 6⅝x8¾	W	4	1879	330 1200	292 1200	212 900		725	99		1580 700			VI	2.50-.687
32	8DC-2505	Lanova	M,I	PC	8 6⅝x8¾	W	4	2505	388 1300	347 1300	246 1000	13.00	825	93.5	37.1	1810 700	9800	12350	VI	2.50-.687
33	*8DCS-2505	Lanova	M,I	PC	8 6⅝x8¾	W	4	2505	516 1300	456 1300	348 1000	13.00	875	110	31.0	2390 800	10500	13000	VI	2.50-.687
34	Caterpillar D-311	Own	Tr,M,I	PC	4 4x5	W	4	252	57 2000	52 2000	39 1700	18.50		72	48.5	164 1300	1690	2500+	VI	1½-.421
35	D-315	Own	Tr,M,I	PC	4 4½x5½	W	4	350	77.5 1800	69.5 1800	52.5 1600	18.0		74	46.7	234 1350	2450	2930+	VI	2⅛-.434
36	D-318	Own	Tr,M,I	PC	4 4½x5½	W	4	525	119 1800	110 1800	78.5 1600	18.0		74	39.5	347 1300	3100	3620+	VI	2⅛-.434
37	D-326	Own	Tr,M,I	PC	6 5½x6	W	4	743	186-2000	158-2000	111 1600	18.00		74	34.2	457 1400	3800		VI	2⅛-.498
38	D-337	Own	Tr,M,I	PC	6 5½x6	W	4	743	275 2000	233 2000	161 1600	18.00		107	24.2	655 1500	3900		VI	2⅛-.498
39	D-8900	Own	Tr,M,I	PC	4 5¾x8	W	4	831	102 1000	98 1000	79 1000	15.7		75	58.2	561 800	4800	5530+	VI	2⅝-.468
40	D-13000	Own	Tr,M,R,I	PC	6 5¾x8	W	4	1246	150 1000	145 1000	115 1000	15.7		73	48.7	842 800	5610	7450+	VI	2⅝-.468
41	D-17000	Own	M,I,R	PC	8 5¾x8	W	4	1662	200 1000	190 1000	152 1000	15.7		72	52.6	1050 950	8000	9538+	VI	2⅝-.468
42	D-397	Own	M,I,R	PC	12 5¾x8	W	4	2493	300 1200	274 1200	214 1000	16.00		99	29.5	2327 900	11000	14000+	VI	2½-.5925
43	D-398	Own	M,I,R	PC	12 5¾x8	W	4	2493	400 1200	374 1200	294 1200	16.00		78	36.7	1850 900	10770	13770+	VI	2½-.5925
44	D-375	Own	M,I,R	PC	8 5¾x8	W	4	1662	335 1200	317 1200	250 1200	16.00		99	33.8	1550 900	8550	11350+	VI	2½-.5925
45	D-364	Own	M,I,R	PC	8 5¾x8	W	4	1662	265 1200	247 1200	196 1200	16.00		78	42.7	1232 900	8370	11170+	VI	2½-.5925
46	Continental GD-157	Own	I,M	TC	4 3⅝x4½	W	4	157	37.5 2000	32 2000	25 1800	15.7		79	24.2	109 1250	605		VI	1.18-.375
47	HD-243	Own	I	TC	4 3⅝x5½	W	4	243	53.1 2000	45 2000	39.8 1800	15		79	21.1	168.5 1200	840		VI	1.37-.325
48	HD-260	Own	I	TC	4 3⅞x5½	W	4	260	57.0 2000	48.5 2000	41.6 1800	15		79	20.2	181 1200	840		VI	1.37-.325
49	TD-427	Own	I	TC	6 4½x4⅞	N	4	427	102 2000	87.2 2000	74.9 1800	14.5		79	17.4	299 1200	1300		VI	1.71-.437
50	RD-572	Own	I,M	TC	6 4½x5⅛	D	4	572	150 2200	116 2000	96.5 1800	14.5		79	19.1	430 1200	1845		VI	1.87-.546
51	TD-6427	Own	T,B,Tr	TC	6 4½x4⅞	N	4	427	112 2400		95 2400	14.5		106	13.4	300 1200	1270		VI	1.71-.437
52	RD-6572	Own	T,B,Tr	TC	6 4½x5⅛	D	4	572	150 2200		127 2200	14.5		105	14.1	400 1200	1785		VI	1.87-.546
53	Cummins A-600	Own	T,B,Tr,M,R,I	DI	6 4x5	W	4	377	100 2200	85 2200	57 1600	18.00		75	25.2	275 1200	1640	1719	VI	1.37-.406
54	H-400	Own	T,B,Tr,M,R,I	DI	4 4⅞x6	W	4	448	100 1800	83 1800	50 1200	17.00		74	32.8	340 800	1840	1920	VI	1.75-.500
55	H-600	Own	T,B,Tr,M,R,I	DI	6 4⅞x6	W	4	672	150 1800	125 1800	102 1800	17.00		72	23.5	500 800	2595	2690	VI	1.75-.500
56	*HS-600	Own	T,B,Tr,M,R,I	DI	6 4⅞x6	W	4	672	200 1800	175 1800	140 1800	14.00		101	18.4	625 1400	2780	2900	VI	1.75-.500
57	NH-600	Own	T,B,Tr,M,R,I	DI	6 4⅞x6	W	4	743	200 2100	174 2100	130 1800	15.50		76	19.2	535 1400	2690	2825	VI	1.56-.420
58	NHHB-600				6 5½x6	W		743	200-1800			15.50				535-1200	2285		VI	
59	*NHS-600	Own	T,B,Tr,M,R,I	DI	6 5½x6	W	4	743	275 2100	240 2100	175 1800	13.50		101	15.8	710 1600	2975	3155	VI	1.56-.420
60	HR-600	Own	T,B,Tr,M,R,I	DI	6 5½x6	W	4	743	165 1800	141 1800	115 1800	15.50		71	20.9	540 1000	2600	2695	VI	1.75-.500
61	L-600	Own	M,R,I	DI	6 7x10	W	4	2309		250 1000	190 9000	14.00		72	39.8	1560 600	7790	9600	VI	2.75-.718
62	HR-400	Own	T,B,Tr,M,R,I	DI	4 5½x6	W	4	495	110 1800	94 1500	71 1600	15.50		71	25.9	360 1050	1840	1915	VI	1.75-.500
63	*HRS-600	Own	T,B,Tr,R,I	DI	6 5½x6	W	4	743	225 1800	191 1800	157 1800	13.50		95	16.4	695 1000	2780	2930	VI	1.75-.500
64	*NHRS-600	Own	T,B,Tr,M,R,I	DI	6 5½x6	W	4	743	300-2100	255 2100	188 1800	12.00		111	15.6	800 1400	2925	3155	VI	1.56-.420
65	NVH-1200	Own	T,Tr,M,R,I	DI	12 5½x6	W	4	1486	400 2100	350 2100	262 1800	15.50		78	21.0	1075 1200	5500	5450	VI	1.56-.420
66	*NVHS-1200	Own	T,Tr,M,R,I	DI	12 5½x6	W	4	1486	550 2100	480 2100	350 1800	13.50		103	14.3	1420 1600	5000	5700	VI	1.56-.420
67	JBS-600	Own	T,B	DI	6 4½x5	W	4	401	150 2500			15.00				360 1400	1745		VI	1.38-.500
68	HRBB-600	Own	T,B,Tr,R,I	DI	6 5½x6	W	4	743	175 2000	148 2000	113 1800	15.50		67	23.4	505 1100	2650		VI	1.94-.500
69	(1) NHH-600	Own	B,R	DI	6 5½x6	W	4	743	200 2100			15.50				535 1300	2285		VI	1.75-
70	LR-600	Own	M,R,I	DI	6 7½x10	W	4	2477		300 1100	225 1000	13.50		72	34.6	1650 650	7790	9600	VI	2.75-.718
71	Fageol-Leyland 600	Leyland	T,B,Tr,M,R,I	DI	6-4½x5½	D	4	597	160-2400			15.75	1000	114		455-1200	1625	1625	VI	1.90-.500
72	690	Leyland	T,B,Tr,M,R,I	DI	6-5x5¾	D	4	677	180-2400			15.75	1000	112		504-1100	1625	1625	VI	
	Fairbanks-Morse																			
73	4583½		M,I	PC	1 3½x4	W	4	30.7		6.5-1800	5.25-1800	16.90	850	80	.8	19		430	VI	1.25-
74	4584½		M,I	PC	1 4½x4½	W	4	60.1		13.2 1800	10.5-1800	16.90	850	80	6.1	30		650	VI	
75	48A3		M,I	PC	1 3x4		4	28.0	5.4 1900	4.8 1900	3.5-1800	18.00	650	55	12.1	11 1500		425	VI	1.09-.209
76	48A4⅛		I	PC	1 4⅛x5	W	4	71	15-2000	12-1800	11 1800	18.00	625	68		55 1000			VI	1.37-.313
77	48A4¼		M,I	PC	2 4¼x5	W	4	142	33-2000	25-1800	22 1800	18.00	625	68	68.1	100 1200		1500	VI	1.37-.313
78	48A4¼		M,I	PC	3 4¼x5	W	4	213	50 2000	38-1800	34 1800	18.00	625	69	51.4	161 2000		1750	VI	1.37-.313
79	48A4¼		M,I	PC	6 4¼x5	W	4	426	100 2000	75-1800	67 1800	18.00	625	70	33.2	325 1200		2230	VI	1.37-.313
80	49A4½		M,I	DI	2 4½x5½	W	2	174	54 1400	53-1400	40 1200	16.00	1200	76	33.7	210 800		1350	VI	
81	49A4½		M,I	DI	3 4½x5½	W	2	262	83 1400	80-1400	60 1200	16.00	1200	76	28.3	315 800		1700	VI	
82	49A4½		M,I	DI	4 4½x5½	W	2	350	110 1400	105 1400	80 1200	16.00	1200	76	25.0	440 800		2000	VI	

For abbreviations, see pages 286 and 287

For Directory of the Manufacturers listed above, see page 338

DIESEL ENGINES



VALVES		PISTON					PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM							STARTING METHOD		OVERALL DIMENSIONS					
Exhaust Port Diameter and Lift (In.)		Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked in—	Materials (S. A.E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifices	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Clutch Housing (S.A.E. Numbers)	Line Number
3.25– .875		CI	13.00	93.0	4	2	3.25-7.62	F	4140	22.25	85.0	5	6.25	Sc	Sc	C	Mu	3500	Opt	WP	Own	A	96	86¾	79¾	.....	1
3.25– .875		CI	13.00	93.0	4	2	3.25-7.62	F	4140	22.25	85.0	6	6.25	Sc	Sc	C	Mu	3500	Opt	WP	Own	A	112	86¾	79¾	.....	2
3.25– .875		CI	13.00	93.0	4	2	3.25-7.62	F	4140	22.25	85.0	7	6.25	Sc	Sc	C	Mu	3500	Opt	WP	Own	A	125	86¾	79¾	.....	3
3.25– .875		CI	13.25	95.0	4	2	3.25-7.62	F	4140	22.25	85.0	7	6.25	Sc	Sc	C	Mu	3500	Opt	WP	Own	A	140	86¾	90	.....	4
3.25– .875		CI	13.00	93.0	4	2	3.25-7.62	F	4140	22.25	85.0	9	6.25	Sc	Sc	C	Mu	3500	Opt	WP	Own	A	155	86¾	79¾	.....	5
3.25– .875		CI	13.25	95.0	4	2	3.25-7.62	F	4140	22.25	85.0	9	6.25	Sc	Sc	C	Mu	3500	Opt	WP	Own	A	169	86¾	90	.....	6
1.12– .429		AA	4.12	2.36	3	2	1.00-2.75	F	1035	7½	2.62	2	2.50	AB	AB	C	Pi	2000	Uni	Com	AL	E-H	18½	19¾	29½ (11)	2.3	7
1.12– .429		AA	4.12	2.36	3	2	1.00-2.75	F	1035	7½	2.62	3	2.50	AB	AB	C	Pi	2000	Uni	Com	AL	E-H	22½	19¾	29½ (11)	3.2	8
1.12– .429		AA	4.12	2.36	3	2	1.00-2.84	F	1035	7½	2.62	3	2.50	AB	AB	C	Pi	2000	Uni	Com	AL	Ele	30½	19¾	28½ (12)	3.2	9
1.12– .429		AA	4.46	2.69	3	2	1.00x3.10	F	1035	7½	2.62	3	2.50	AB	AB	C	Pi	2000	Uni	Com	AL	Ele	30½	19¾	28½ (12)	3.2	10
1.12– .429		AA	4.12	2.36	3	2	1.00-2.84	F	1035	7½	2.62	7	2.50	AB	AB	C	Pi	2000	Uni	Com	AL	Ele	38½	19¾	28½ (12)	3.2	11
1.12– .429		AA	4.46	2.69	3	2	1.00x3.10	F	1035	7½	2.62	7	2.50	AB	AB	C	Pi	2000	Uni	Com	AL	Ele	38½	19¾	28½ (12)	3.2	12
1.18– .486		AA	4.93	3.00	3	2	1.25-2.92	F	1035	9.50	3.41	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DR	Ele	42½	27	35½ (12)	2.3	13
1.18– .486		AA	4.93	3.00	3	2	1.25-2.92	F	1035	9.50	3.41	7	3.00	AB	AB	C	Pi	2000		B-P	DR	Ele	54½ (11)	27½	34½ (12)	2.3	14
1.37– .476		AA	5.25	4.48	3	2	1.50-3.56	F	6140	11.00	4.87	7	3.00	AB	AB	C	Pi	2000	Uni	B-P	DR	Ele	48½	28½	37½ (12)	2.1	15
1.37– .476		AA	5.25	4.48	3	2	1.50-3.56	F	6140	11.00	4.87	7	3.00	AB	AB	C	Pi	2000		B-P	DR	Ele	61½ (11)	29½	36½ (12)	2.1	16
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	7	3.89	AB	AB	C	Pi	2000	Uni	Com	L-D	Ele	58½	29½	48¼	1.0	17
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	7	3.89	AB	AB	C	Pi	2000	Uni	AB	L-D	E-G	58½	29½	48¼	1.0	18
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800	Uni	P-S	D-N	E-G	86½	38½	62½ (12)	00.0	19
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800		P-S	D-N	E-G	114½ (11)	37½	62½ (12)	00.0	20
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800	Uni	P-S	D-N	E-G	95¾	48	62½ (12)	00.0	21
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	7	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	63½	30½	46¼	1.0	22
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	7	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	58½	32½	48¼	1.0	23
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	7	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	89½	35½	48¼	1.0	24
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	9	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	73	30½	48¼	1.0	25
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	9	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	101½	35½	48¼	1.0	26
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	9	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	83½	32½	53¾	1.0	27
1.81– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	9	3.89	AB	AB	C	Pi	2000		AB	L-D	E-G	101½	35½	48¼	1.0	28
1.87– .540		AA	6.75	6.70	3	2	1.75-4.50	F	1040	12.50	10.62	5	3.75	AB	AB	C	Pi	2000	Com	Com	DR	Ele	44½	30½	48¼	1.0	29
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800		Pur	LB	E-G	89½	48	63¾	00.0	30
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800		Pur	LB	E-G	126½	48	72¾	00.0	31
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	9	4.69	AB	AB	C	Pi	1800	Don	Pur	LN	AEG	108½	47½	74½	00.0	32
2.16– .687		AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	9	4.69	AB	AB	C	Pi	1800	Don	Pur	LN	AEG	112½	47½	74½	00.0	33
1⅜– .423		Alu	5.53	.....	3	2	1.62-3.23	F	1040	10.25	.....	5	2.75	Own	Own	C	Si	750	Don	Own	Own	G	56¾	27¼	31½	2A	34
1¼– .434		Alu	6.16	.....	3	2	1.81-3.73	F	1040	10.25	.....	5	3.50	Own	Own	C	Si	750	Don	Own	Own	G	59½	29¼	49¾	1A	35
1¼– .434		Alu	6.16	.....	3	2	1.81-3.73	F	1040	10.25	.....	7	3.50	Own	Own	C	Si	750	Don	Own	Own	G	76½	31¼	66¾	1A	36
1¼– .498		AA	6.39	.....	3	2	2.00-4.17	F	1040	11.00	.....	7	4.25	Own	Own	C	Si	750	Don	Own	Own	G	70½	37¼	51¾	1	37
1½– .498		AA	6.39	.....	3	2	2.00-4.17	F	1040	11.00	.....	7	4.25	Own	Own	C	Si	750	Don	Own	Own	G	71½	37¼	66¾	0	38
2⅛– .468		Alu	9.18	.....	3	1	2.37-4.73	F	1040	15.00	.....	5	3.75	Own	Own	C	Si	1750	Don	Own	Own	G	69½	40	66¾	0A	39
2⅛– .468		Alu	9.18	.....	3	1	2.37-4.73	F	1040	15.00	.....	7	3.75	Own	Own	C	Si	1750	Don	Own	Own	G	87½	42¾	67¾	0A	40
2⅛– .468		Alu	9.18	.....	3	1	2.37-4.73	F	1040	16.00	.....	5	4.00	Own	Own	C	Si	1750	Don	Own	Own	G	85	50¾	66¾	0A	41
2⅜– .5925		Alu	8.18	.....	3	1	2.39-4.73	F	1040	18.00	.....	7	5.50	Own	Own	C	Si	750	Don	Own	O-D	A-EI	112½	48¼	70½	00	42
2⅜– .5925		Alu	8.18	.....	3	1	2.38-4.73	F	1040	18.00	.....	7	5.50	Own	Own	C	Si	750	Don	Own	O-D	A-EI	106¾	48¼	70½	00	43
2⅜– .5925		Alu	8.18	.....	3	1	2.39-4.73	F	1040	18.00	.....	6	5.50	Own	Own	C	Si	750	Don	Own	O-D	A-EI	89¾	48¼	70½	00	44
2⅜– .5925		Alu	8.18	.....	3	1	2.39-4.73	F	1040	18.00	.....	6	5.50	Own	Own	C	Si	750	Don	Own	O-D	A-EI	89¾	48¼	70½	00	45
1.06– .375		AA	3.75	.....	3	1	1.12–	F	.....	7.00	.....	3	2.37	AB	AB		Si	(a)	Opt	AB		Ele	31½	19¾	30¼	.....	46
1.25– .328		AA	4.31	.....	3	2	1.25–	F	.....	9.50	.....	3	2.87	AB	AB		Si	(a)	Opt	AB		Ele	33½	21½	35	.....	47
1.25– .328		AA	4.31	.....	3	2	1.25–	F	.....	9.50	.....	3	2.87	AB	AB		Si	(a)	Opt	AB		Ele	33½	21½	35	.....	48
1.50– .437		AA	4.68	.....	3	2	1.43–	F	.....	8.37	.....	7	2.87	AB	AB		Si	(a)	Opt	AB		Ele	47½	27½	37½	Opt	49
1.65– .546		AA	5.93	.....	3	2	1.50–	F	.....	10.50	.....	7	3.25	AB	AB		Si	(a)	Opt	AB		Ele	51½	31½	44½	Opt	50
1.50– .437		AA	4.68	.....	3	2	1.25–	F	.....	8.37	.....	7	2.87	AB	AB		Si	(a)	Opt	AB		Ele	.....	.....	.....	Opt	51
1.65– .546		AA	5.93	.....	3	2	1.50–	F	.....	10.50	.....	7	3.25	AB	AB		Si	(a)	Opt	AB		Ele	.....	.....	.....	Opt	52
1.37– .406		CI	5.04	5.70	3	2	1.49-3.37	F	.....	9.50	6.0	7	3.87	Own	Own		Mu		Don	Com	L-D	Ele	48½ (2)	28½	36½ (3)	3.2	53
1.75– .500		CI	6.25	10.56	3	2	1.99-4.09	F	.....	12.00	10½	5	4.50	Own	Own		Mu		Don	Com	L-D	Ele	43½ (2)	29½	47½ (3)	2.1	54
1.75– .500		CI	6.25	10.56	3	2	1.99-4.09	F	.....	12.00	10½	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	57½ (2)	29½	47½ (3)	2.1,0	55
1.75– .500		Alu	6.25	7.21	3	2	1.99-4.09	F	.....	12.00	10½	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	60½ (2)	30½	47½ (3)	1,0	56
1.56– .420		Alu	6.25	8.75	3	1	1.99-4.34	F	.....	12.00	10½	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	61½ (2)	28½	49½	2,1,0	57
– .420		Alu	.....	.....	3	1	1.99-4.34	F	.....	12.00	10.50	7	4.50	Own	Own		.....		.....	.....	.....	DR	Ele	.....	.....	.....	.....	58
1.56– .420		Alu	6.25	8.65	3	1	1.99-4.34	F	.....	12.00	10½	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	60½ (2)	32½	48½ (3)	1,0	59
1.75– .500		Alu	6.25	8.75	3	1	1.99-4.34	F	.....	12.00	10.50	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	57½ (2)	27½	47½ (3)	2,1,0	60
2.75– .718		CI	10½	38.07	5	2	2.88-6.00	F	.....	18.00	.....	7	5.50	Own	Own		Mu		Don	Nug		A-EI	98	44½	58¾	0,00	61
1.75– .500		CI	6.25	10.5	3	1	1.99-4.34	F	.....	12.00	10.50	5	4.50	Own	Own		Mu		Don	Com	L-D	Ele	43½	29½	47½ (3)	2,1	62
1.75– .500		Alu	6.25	8.65	3	1	1.99-4.34	F	.....	12.00	10.50	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	60½	30½	47½ (3)	1,0	63
1.56– .420		Alu	6.25	8.65	3	1	1.99-4.34	F	.....	12.00	10.50	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	60½	32½	48½	1,0	64
1.56– .420		Alu	6.25	8.65	3	1	1.99-4.34	F	.....	12.00		7	5.00	Own	Own		Mu		Don	Pur	L-D	Ele	73	41	57 (3)	0,00	65
1.56– .420		Alu	6.25	8.65	3	1	1.99-4.34	F	.....	12.00		7	5.00	Own	Own		Mu		Don	Pur	L-D	Ele	73	42	57 (3)	0,00	66
1.38– .500		Alu	4.75	.....	3	1	1.50-3.37	F	.....	9.50	6.60	7	3.88	Own	Own		Mu		Don	Com	L-D	Ele	48½	24½	40½ (3)	2,3	67
1.94– .500		Alu	6.23	8.65	3	1	1.99-4.34	F	.....	12.00	10.50	7	4.50	Own	Own		Mu		Don	Com	L-D	Ele	61½	27½	47½ (3)	2,1,0	68
1.75– .420		Alu	6.23	8.65	3	1	1.99-4.34	F	.....	12.00	10.50	7	4.50	Own	Own		Mu		Don	Com	DR	Ele	63½	30½	22¾	1	69
2.75– .718		Alu	10.66	.....	3	2	2.88-6.00	F	.....	18.00	.....	7	5.50	Own	Own		Mu		Don	Nug		A-EI	98	44½	58¾	0,00	70
1.00– .500		AA	6.90	7.21	3	2	1.63-4.20	F	EN16S	10.50	7.38	7	3.50	CA	Own	C	Mu	2100	Opt	Opt	L-D	Ele	52¼	25¾	40	1,2,3	71
.....		AA	6.90	7.35	3	2	.....	...	EN16S	10.50	7.38	7	....	CA	Own	C	.....	.....	Opt	Opt	L-D	Ele	52¼	25¾	40	1,2,3	72
1.00–					3	1		F				2	2.00	Dem	Dem	C	Pi	1750	AC	AC	AL	E-H	18	18	21½	.....	73
		Alu			3	1		F				2	2.50	Dem	Dem	C	Pi	1750	AC	AC	AL	E-H	30	23	34	.....	74
1.09– .209		CI	3.81	2.28	3	2	1.06-2.50	F	1035	8.00	1.65	2	2.00	Own	Own	O	Si		AM	AC	AL	E-H	18½	20¾	28½	.....	75
1.37– .313		CI	5.46	6.20	3	2	1.50-4.00	F	1035	10.87	6.60	2	2.75	Own	Own	O	Si		AM	Fra	AL	Opt	23	23	38	.....	76
1.37– .313		CI	5.93	6.20	3	2	1.50-4.00	F	1035	10.87	6.60	3	2.75	Own	Own	O	Si		AM	Fra	AL	Opt	30	23	38	.....	77
1.37– .313		CI	5.31	6.20	3	2	1.50-4.00	F	1035	10.87	6.60	4	2.75	Own	Own	O	Si		AM	Fra	AL	Ele	35	23	38	.....	78
1.37– .313		CI	5.46	6.20	3	2	1.50-4.00	F	1035	10.87	6.60	7	3.18	Own	Own	O	Si		AM	Fra	AL	Ele	50	24	40	.....	79
2.30– .520		Alu	6.36	6.75	3	2	1.75-3.85	F	1141	11.87	8.25	3	4.00	AB	AB	C	Si	3000	Don	Com	AL	Ele	32½	28½	40¾	1	80
2.30– .520		Alu	6.36	6.75	3	2	1.75-3.85	F	1141	11.87	8.25	4	4.00	AB	AB	C	Si	3000	Don	Com	AL	Ele	38½	28½	40¾	1	81
2.30– .520		Alu	6.36	6.75	3	2	1.75-3.85	F	1141	11.87	8.25	5	4.00	AB	AB	C	Si	3000	Don	Com	AL	Ele	45½	28½	40¾	1	82

For abbreviations, see pages 286 and 287

For Directory of the Manufacturers listed above, see page 338

1952 AUTOMOTIVE DIESEL

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL: Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio — to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.) ♦	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	VALVES: Arrangement	VALVES: Intake Port Diameter and Lift (In.)
	Fairbanks-Morse Cont.																			
1	49A4½		M,I	DI	6-4½x5½	W	2	525	165-1400	158-1400	120-1200	16.00	1200	76	21.2	630-800		2550	VI	
2	48A4		I	PC	1-4x5	W	4	63		11-1800	8-1200	18.00		84		45			VI	
3	46A4		M,I	PC	2-4x5	W	4	126		23-1800	16-1200	18.00		84	101.2	96		1820	VI	
4	48A4		M,I	PC	3-4x5	W	4	188		34-1800	25-1200	18.00		87	78.6	140		1865	VI	
5	48A4		M,I	PC	6-4x5	W	4	377		68-1800	56-1200	18.00		87	42.5	280		2385	VI	
6	General Motors 2-71	Own	T,B,Tr,I,M	DI	2-4¼x5	D	2	142		66-2000■	48-1800■	16.00	1000	74	16.0	200-1200	770		VI	No Valves
7	3-71	Own	T	DI	3-4¼x5	D	2	213		110-2100■		16.00	1100			272-1700			VI	No Valves
8	4-71	Own	T	DI	4-4¼x5	D	2	284		150-2100■		16.00	1100			387-1600			VI	No Valves
9	6-71	Own	T	DI	6-4¼x5	D	2	426		225-2100■		16.00	1100			581-1600			VI	No Valves
10	Twin 4-71	Own	I	DI	8-4¼x5	D	2	567		267-2000■	192-1800■	16.00	1000	74	24.5	1400-685Sh	4700		VI	No Valves
11	Twin 6-71	Own	I,M	DI	12-4¼x5	D	2	851		400-2000■	290-1800■	16.00	1000	74	18.6	2100-685Sh	5400		VI	No Valves
12	Tandem Twins 6-71	Own	M	DI	12-4¼x5	D	2	851		390-2000	280-1800	16.00	1000	74	26.0			7550	VI	No Valves
13	Quad 6-71	Own	I,M	DI	24-4¼x5	D	2	1702		800-2000■	580-1800■	16.00	1000	74	20.6	4200-685Sh	12000		VI	No Valves
14	2-71	Own	MW	DI	2-4¼x5	D	2	142		52-1800s	44-1600s	16.00	980	74	27			Vwg	VI	No Valves
15	3-71	Own	B,Tr,I,M	DI	3-4¼x5	D	2	213		100-2000	72-1800■	16.00	1000	74	17	300-1200	1245		VI	No Valves
16	4-71	Own	B,Tr,I,M	DI	4-4¼x5	D	2	284		133-2000	96-1800	16.00	1000	74	14.0	400-1200	1380		VI	No Valves
17	6-71	Own	B,Tr,I,M	DI	6-4¼x5	D	2	426		200-2000	145-1800	16.00	1000	74	11.0	600-1200	1655		VI	No Valves
18	Twin 6-71	Own	MW	DI	12-4¼x5	D	2	851		322-1800s	260-1600s	16.00	1000	74	24.5			6400	VI	No Valves
19	Tandem Twins 6-71	Own	MW	DI	12-4¼x5	D	2	851		322-1800s	260-1600s	16.00	1000	74	29.0			7550	VI	No Valves
20	Quad 6-71	Own	MW	DI	24-4¼x5	D	2	1702		644-1800s	520-1600s	16.00	1000	74	24.0			12600	VI	No Valves
21	6-110	Own	M,I	DI	6-5x5.6	D	2	660		275-1800■	200-1600■	18.00	1250		14.8	886-1400	4070		VI	No Valves
22	3-71	Own	MW	DI	3-4¼x5	D	2	213		79-1800s	64-1600s	16.00	1000	74	29.8			Vwg	VI	No Valves
23	4-71	Own	MW	DI	4-4¼x5	D	2	284		107-1800s	88-1600s	16.00	1000	74	28.0			Vwg	VI	No Valves
24	6-71	Own	MW	DI	6-4¼x5	D	2	426		161-1800s	130-1600s	16.00	1000	74	20.0			Vwg	VI	No Valves
25	8-110	Own	MW	DI	6-5x5.6	D	2	660		216-1600s	190-1600s	18.00	1250		18.5			Vwg	VI	No Valves
26	Gray Marine Four D-157		M	TC	4-3⅝x4⅝	W	4	157			30-1800	15.00			34.2	108-1800		1100	VI	1.18-.273
27	Four D-260		M	TC	4-3⅞x5½	W	4	260			50-1800	15.00			27.2	167-1200		1400	VI	1.37-.246
28	Six D-572		M	TC	6-4⅜x5⅜	D	4	572			135-2200	15.00			13.0	401-1600		2750	VI	1.87-.546
29	Six D-427	Lanova	M	TC	6-4⅛x4⅞	N	4	427			100-2200	14.40		85	16.0	250-2200		1600	VI	1.72-.440
30	Hallett AC1	Own	Tr,I	PC	1-3½x3½	N	4	35	6.5-2000	5.5-1800	5-1800	21.50	1000	80	37.0		185		VI	1.25-.315
31	DI-A	Own	I,M	PC	1-3½x4½	N	4	50	10-1800	10-1800	8-1500	21.60	1000	84	56.2	32-1800	450	625	VI	1.62-.313
32	D2	Own	I,M	PC	2-3½x4½	N	4	100	22.5-1800	20-1800	18-1500	21.60	1000	97	33.0	64-1800	590	760	VI	1.62-.315
33	Hercules DIXC	Own	Tr,M,I	TC	2-4x4½	D	4	113	27-1800	23-1800	23-1800	15.50	750	92	23.9	81-1400	550		VI	1.62-.375
34	DIXD	Own	Tr,M,I	TC	2-4½x4½	D	4	127	30-1800	26-1800	26-1800	15.50	750	88	21.6	91-1300	550		VI	1.62-.375
35	DIX4B	Own	T,B,Tr,M,R,I	TC	4-3½x4	D	4	133	46-3000	39-3000	33-2200	15.50	825	89	18.3	96-1500	600		VI	1.37-.350
36	DIX4D	Own	T,B,Tr,M,R,I	TC	4-3½x4	D	4	165	57-3000	48-3000	41-2200	15.50	825	90	14.6	120-1500	600		VI	1.56-.350
37	DOOB	Own	T,Tr,M,I,B	TC	4-3⅝x4½	D	4	199	82-2600	53-2600	41-1800	15.50	750	91	18.3	142-1400	750		VI	1.62-.375
38	DOOC	Own	T,Tr,M,I,B	TC	4-4x4½	D	4	226	70-2600	60-2600	47-1800	15.50	750	91	15.9	162-1400	750		VI	1.62-.375
39	DOOD	Own	T,Tr,M,I,B	TC	4-4½x4½	D	4	255	79-2600	66-2600	53-1800	15.50	750	91	14.2	182-1400	750		VI	1.62-.375
40	DIX6D	Own	Tr,M,B,R,T,I	TC	6-3½x4	D	4	249	93-3000	79-3000	67-2200	15.50	825	96	12.0	186-1800	600		VI	1.56-.350
41	DJXB	Own	T,B,Tr,M,R,I	TC	6-3½x4½	D	4	260	77-2600	66-2600	51-1800	15.50	750	87	18.5	179-1300	950		VI	1.62-.375
42	DJXC	Own	T,B,Tr,M,R,I	TC	6-3⅝x4½	D	4	298	83-2600	71-2600	59-1800	15.50	750	87	16.1	208-1300	950		VI	1.62-.375
43	DJXH	Own	T,B,Tr,M,I	TC	6-3⅝x4½	D	4	298	99-2600	84-2600	67-1800	15.50	750	99	14.2	234-1400	930		VI	1.75-.375
44	DWXC	Own	T,B,Tr,M,R,I	TC	6-4x4¾	D	4	358	120-2600	102-2600	80-1800	15.50	750	98	16.9	284-1600	1350		VI	1.68-.395
45	DWXD	Own	T,B,Tr,M,R,I	TC	6-4¼x4¾	D	4	404	135-2600	115-2600	91-1800	15.50	750	99	14.8	320-1600	1350		VI	1.68-.395
46	DWXID	Own	T,B,Tr,M,R,I	TC	6-4½x5	D	4	426	142-2600	121-2600	95-1800	15.50	750	98	14.2	333-1600	1350		VI	1.68-.395
47	DWXIDF	Own	B,M,R	TC	6-4½x5	D	4	426	142-2600	121-2600	90-1800	15.50	750	93	14.7	319-1400	1325		VI	1.68-.395
48	DRXB	Own	T,B,Tr,M,R,I	TC	6-4⅜x5¼	D	4	474	134-2200	114-2200	90-1600	15.00	750	95	17.6	358-1200	1600		VI	2.00-.395
49	DRXC	Own	T,B,Tr,M,R,I	TC	6-4½x5¼	D	4	529	147-2200	125-2200	100-1600	15.00	750	95	16.0	395-1200	1600		VI	2.00-.395
50	DFXB	Own	T,B,M,Tr,I	TC	6-5x6	D	4	707	190-2100	162-2100	136-1600	14.80	750	95	18.4	530-1350	2500		VI	2.37-.500
51	DFXC	Own	T,B,M,Tr,I	TC	6-5½x6	D	4	779	204-2100	173-2100	149-1600	14.80	750	95	16.8	585-1350	2500		VI	2.37-.500
52	DFXD	Own	T,B,M,Tr,I	TC	6-5½x6	D	4	855	217-2100	184-2100	162-1600	14.80	750	94	15.4	645-1200	2500		VI	2.37-.500
53	DFXE	Own	T,B,Tr,M,R,I	TC	6-5⅝x6	D	4	895	228-2100	194-2100	170-1600	14.80	750	94	14.7	680-1200	2500		VI	2.37-.500
54	DFXH	Own	T,B,Tr,M,R,I	TC	6-5⅝x6	D	4	935	260-2100	221-2100	187-1600	14.80	750	99	13.9	750-1200	2600		VI	2.80-.500
55	DFXHF	Own	B,M,R	TC	6-5⅝x6	D	4	935	260-2100	221-2100	187-1600	14.80	750	99	13.9	750-1200	2600			2.60-.500
56	DNX-V8	Own	T,B,Tr,M,I	TC	8-5½x6	D	4	1486	400-2100	340-2100	280-1600	14.80	750	94	15.1	1100-1200	4200		VI	2.87-.500
57	DNX-V8S	Own	M,I	TC	8-5½x6	D	4	1468	500-2100	425-2100	345-1600	14.80	750	115	13.9	1320-1400	4800		VI	2.87-.500
58	Hill 2R	Own	M,I	PC	2-3½x5½	D	4	106	19-1500	17.3-1500	16.6-1500	16.00		85	64.0	69-1200	1225	1300	VI	1.37-.372
59	4R	Own	M,I	PC	4-3½x5½	D	4	212	41-1500	36.3-1500	33-1500	16.00		85	44.0	142-1200	1615	1750	VI	1.37-.372
60	6R	Own	M,I	PC	6-3½x5½	D	4	317	63-1500	55-1500	50-1500	16.00		85	37.5	225-1200	2150	2300	VI	1.37-.372
61	International UD8A	Own	Tr,I	PC	4-3⅞x5¼	D	4	248	52.5-1800	45-1600	36-1600	16.80		72	34.4	164-1000	1240		VI	1.50-.500
62	UD9A	Own	Tr,I	PC	4-4.4x5½	D	4	334	73-1800	62.5-1600	50-1600	15.70		74	30.0	230-1050	1500		VI	1.66-.500
63	UD14A	Own	Tr,I	PC	4-4⅝x6½	W	4	461	99-1600	76-1400	60.8-1400	15.50		75	29.2	322-900	1775		VI	1.78-.532
64	UD16	Own	Tr,I	PC	6-4.4x5.5	D	4	502	103-1800	100-1800	80-1600	16.00		76	20.2	330-1080	2255		VI	1.66-.532
65	UD18A	Own	Tr,I	PC	6-4¾x6½	W	4	691	131-1600	125-1600	100-1600	15.50		72	20.8	482-850	2980		VI	1.78-.532
66	UD24	Own	Tr,I	PC	6-5¼x7	D	4	1091	191-1375	180-1375	144-1375	15.20		76	27.4	778-800	3955		VI	2.31-.625
67	Karmath 2-127		M	TC	2-4½x4½	D	4	127	28-1600	27-1800	20-1800	15.50	750	78	43.5	81-1400		870	VI	1.62-.375
68	4-226		M	TC	4-4x4½	D	4	226	70-2600	50-2000	40-2000	14.50	500	66	24.5	162-1400		1200	VI	1.62-.375
69	6-296		M	TC	6-3⅝x4½	D	4	296	83-2600	70-2200	60-1900	14.50	500	64	21.5	208-1500		1355	VI	1.62-.375
70	6-529		M	TC	6-4⅝x5¼	D	4	529	147-2200	140-2000	120-1800	14.50	750	95	16.8	585-1350		2100	VI	2.00-.385
71	6-935		M	TC	6-5⅝x6	D	4	935	260-2100	250-2000	190-1600	14.50	750	99	24.5	750-1200		4200	VI	2.37-.500
72	Mack END-510	Lanova	T	TC	6-4½x5½	D	4	510	138-2400	120-2400		14.92	1000	108		368-1400	1727		VI	1.78-.461
73	END-672	Lanova	T,B	TC	6-4½x6	D	4	672	165-2000	154-2000		14.62	1000	108		480-1200	1933		VI	1.90-.500
74	ENDS672	Lanova	B	TC	6-4½x6	D	4	672	222-2000	202-2000		13.18		131		640-1400	2204		VI	1.90-.500
75	Murphy ME-4	Own	I	DI	4-5⅝x6½	W	4	675		105-1200	90-1200	16.00		88	49.5	472-900	+4450	▲6650	V4	1.62-.500
76	11	Own	I	DI	4-5⅝x6½	W	4	675		110-1200	100-1200	16.0		98	44.5	530-800	+4450	▲6650	V4	1.62-.500
77	*111	Own	I	DI	4-5⅝x6½	W	4	675		125-1200	115-1200	16.0		112	40.1	560-1050	+4625	▲6825	V4	1.62-.500
78	12	Own	I	DI	4-6x6½	W	4	735		140-1200	110-1200	16.00		99	40.5	600-750	+4450	▲6650	V4	1.62-.500
79	*112	Own	I	DI	4-6x6½	W	4	735		140-1200	125-1200	16.0		112	37.0	640-950	+4825	▲6825	V4	1.62-.500
80	20	Own	I	DI	6-5½x6½	W	4	927		150-1200	135-1200	16.0		96	38.5	710-600	+5200	▲8000	V4	1.37-.500
81	*120	Own	I	DI	6-5½x6½	W	4	927		160-1200	145-1200	16.0		103	37.8	740-900	+5465	▲8265	V4	1.37-.500
82	21	Own	I	DI	6-5⅝x6½	W	4	1013		165-1200	150-1200	16.00		98	34.7	825-900	+5200	▲8000	V4	1.62-.500
83	*121	Own	I	DI	6-5⅝x6½	W	4	1013		190-1200	170-1200	16.0		111	32.2	880-850	+5465	▲8265	V4	1.62-.500

For abbreviations, see pages 286 and 287

For Directory of the Manufacturers listed above, see page 338

ENGINES—*continued*

VALVES		PISTON				PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM							STARTING METHOD		OVERALL DIMENSIONS				
Exhaust Port Diameter and Lift (in.)	Material	Length (in.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (in.)	Locked in—	Material (S.A.E. No.)	Center to Center Length (in.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (in.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifice	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Clutch Housing (S.A.E. Numbers)	Line Number
2.38-.520	Alu	6.36	6.75	3	2	1.75-3.85	F	1141	11.67	8.25	7	4.00	AB	AB	C	Si	3000	Don	Com	AL	Ele	59 1/8	28 1/4	40 7/8	1	1
.....	CI	.....	.....	3	2	.....	F	1035	.....	.....	2	2.75	Own	Own	C	Si	2300	AM	Fra	AL	E-H	36 1/4	24	48	.....	2
.....	CI	.....	.....	3	2	.....	F	1035	.....	.....	3	2.75	Own	Own	C	Si	2300	AM	Fra	AL	E-H	44 3/8	28	45	.....	3
.....	CI	.....	.....	3	2	.....	F	1035	.....	.....	4	2.75	Own	Own	C	Si	2300	AM	Fra	AL	E-H	54	30	48 1/2	.....	4
.....	CI	.....	.....	3	2	.....	F	1035	.....	.....	7	3.18	Own	Own	C	Si	2300	AM	Fra	AL	Ele	69 1/2	30	48 1/2	.....	5
1.25-.383	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	3	3.80	Own	Own	C	Mu	600	AC	Com	DR	Ele	31	27 1/16	38 1/16 ••	2	6
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	4	3.80	Own	Own	C	Mu	600	AC	Com	DR	Ele	.....	.....	.....	2	7
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	5	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	.....	.....	.....	2	8
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	7	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	.....	.....	.....	2	9
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	10	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	68 1/4	56	57 1/16 ••	0	10
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	14	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	75 3/4	56	57 1/8 ••	0	11
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	14	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	37 1/16	54 1/8 •	.....	12
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	28	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	174	56	68 1/16 •	.....	13
1.25-.383	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	3	3.80	Own	Own	C	Mu	600	AC	Com	DR	Ele	46 1/2	30 1/8	35 1/16 •	.....	14
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	4	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	37 1/16	29 1/2	39 1/16 ••	1	15
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	5	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	42 1/16	29 1/2	40 1/16 ••	1	16
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	7	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	54 1/16	29 1/2	41 1/16 ••	1	17
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	14	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	56	54 1/16 •	.....	18
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	14	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	37 1/16	54 1/16 •	.....	19
1.25-.394	AT	6.00	7.70	4	2	1.50-3.60	F	1141A	10.12	6.14	28	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	56	54 1/16 •	.....	20
1.93-.454	AT	6.50	.....	4	2	1.63-4.34	F	1141A	10.60	7.36	7	4.00	Own	Own	C	Mu	.....	Don	Com	DR	Ele	69 1/16	31 1/16	49 ••	(48")	21
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	4	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	33 1/16	43 1/16 •	.....	22
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	5	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	33 1/16	43 1/16 •	.....	23
1.25-.394	AT	6.00	7.70	4	2	1.50-3.62	F	1141A	10.12	6.14	7	3.50	Own	Own	C	Mu	600	AC	Com	DR	Ele	Vwg	33 1/16	43 1/16 •	.....	24
1.93-.454	AT	6.50	.....	4	2	1.63-4.34	F	1141A	10.60	7.36	7	4.00	Own	Own	C	Mu	1000	Don	Com	DR	Ele	Vwg	34 1/16	46 1/16 •	.....	25
1.09-.273	AA	3.75	.....	3	2	1.12-2.75	F	1035	7.00	.....	3	2.47	AB	AB	.....	Pi	1800	Own	ACB	AL	Ele	48 1/8	20 1/16	30 1/16	3	26
1.25-.248	AA	4.31	.....	3	2	1.25-3.31	F	1035	9.50	.....	3	2.87	AB	AB	.....	Pi	1800	Own	ACB	AL	Ele	54 1/16	21 5/16	34 1/16	3	27
1.86-.546	AA	6.00	.....	3	2	1.50-4.00	F	1035	10.50	4.72	5	3.37	AB	AB	.....	Pi	1800	Own	ACB	DA	Ele	68 1/8	28	40 3/8	1	28
1.50-.440	Alu	4.68	.....	3	2	1.43-3.62	F	.....	8.37	.....	7	2.87	AB	AB	.....	Pi	1800	Own	Fra	DR	Ele	68	28	27	3	29
1.25-.315	AA	.....	2.25	4	1	1.31-2.96	F	4140	7.00	2.75	2	.....	AB	AB	.....	Pi	1800	AM	Pur	AL	Ele	29 7/16	15	25 5/16	.....	30
1.62-.313	Alu	5.25	4.00	4	1	1.37-3.40	F	1045	9.00	4.67	2	.....	AB	AB	.....	Pi	1800	AM	Pur	AL	Ele	28	24	30 1/16	.....	31
1.62-.315	Alu	5.25	4.00	4	1	1.37-3.40	F	1045	9.00	4.67	2	.....	AB	AB	.....	Pi	1800	AM	Pur	AL	Ele	32 1/16	23	30	.....	32
1.12-.375	Alu	4.84	4.00	4	2	1.18-3.45	F	CNM	8.00	5.31	2	3.81	AB	AB	C	Pi	1450	.....	.....	DR	EAH	23 7/16 (2)	19 1/16	36 1/16	2	33
1.12-.375	Alu	4.84	4.47	4	2	1.18-3.70	F	CNM	8.00	5.31	2	3.81	AB	AB	C	Pi	1450	.....	.....	DR	EAH	23 7/16 (2)	19 1/16	36 1/16	2	34
1.12-.350	Alu	4.03	3.20	3	2	1.12-2.62	F	CNM	7.75	4.20	5	2.75	AB	AB	C	Pi	1650	.....	.....	LDA	AEL	29 1/2 (2)	21 1/2	30 1/16	2.4	36
1.12-.350	Alu	4.03	3.20	3	2	1.12-2.87	F	CNM	7.75	4.20	5	2.75	AB	AB	C	Pi	1650	.....	.....	LDA	AEL	29 1/2 (2)	21 1/2	30 1/16	2.4	36
1.12-.375	Alu	4.84	3.56	4	2	1.18-3.20	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	32 1/16 (2)	22 1/16	36	1.5	37
1.12-.375	Alu	4.84	4.00	4	2	1.18-3.45	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	32 1/16 (2)	22 1/16	36	1.5	38
1.12-.375	Alu	4.84	4.47	4	2	1.18-3.70	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	32 1/16 (2)	22 1/16	36	1.5	39
1.12-.350	Alu	4.03	3.20	3	2	1.12-2.87	F	CNM	7.75	4.20	7	2.75	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	38 1/16 (2)	23 1/16	37 1/16	2.4	40
1.12-.375	Alu	4.84	3.12	4	2	1.18-2.95	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	39 (2)	22 1/16	32 1/16	1.3	41
1.12-.375	Alu	4.84	3.56	4	2	1.18-3.20	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	39 (2)	22 1/16	32 1/16	1.3	42
1.31-.375	Alu	4.84	3.56	3	2	1.18-3.20	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	39 (2)	22 1/16	34 1/16	1.3	43
1.25-.395	Alu	4.84	4.00	3	2	1.50-3.62	F	CNM	8.50	7.31	7	3.50	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	44 1/16 (2)	27	42 1/16	1.3	44
1.25-.395	Alu	4.84	4.47	3	2	1.50-3.62	F	CNM	8.50	7.00	7	3.50	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	44 1/16 (2)	27	42 1/16	1.3	45
1.25-.395	Alu	4.84	4.47	3	2	1.50-3.62	F	CNM	8.50	7.00	7	3.50	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	44 1/16 (2)	27	42 1/16	1.3	46
1.25-.395	Alu	4.84	4.47	3	2	1.50-3.62	F	CNM	8.50	7.00	7	3.50	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	55 1/16 (2)	39 7/16	17 1/16	1.3	47
1.37-.395	Alu	6.84	7.09	4	2	1.62-3.75	F	CNM	9.37	8.59	7	3.50	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	46 1/16 (2)	26 1/16	38 3/16	1.2	48
1.37-.395	Alu	6.84	7.93	4	2	1.62-3.93	F	CNM	9.37	8.59	7	3.50	AB	AB	C	Pi	1650	.....	.....	LDA	AEG	46 1/16 (2)	26 1/16	38 3/16	1.2	49
1.62-.500	Alu	7.53	9.94	4	2	2.00-4.18	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	LDA	AEG	61 1/16 (2)	30 1/16	46 1/16	0.1	50
1.62-.500	Alu	7.53	11.69	4	2	2.00-4.42	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	LDA	AEG	61 1/16 (2)	30 1/16	46 1/16	0.1	51
1.62-.500	Alu	7.53	12.37	4	2	2.00-4.65	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	LDA	AEG	61 1/16 (2)	30 1/16	46 1/16	0.1	52
1.62-.500	Alu	7.53	12.34	4	2	2.00-4.65	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	LDA	AEG	61 1/16 (2)	30 1/16	46 1/16	0.1	53
1.90-.500	Alu	7.53	12.60	4	2	2.00-4.90	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	LDA	AEG	61 1/16 (2)	30	47 1/16	0.1	54
1.62-.500	Alu	7.53	12.34	4	2	2.00-4.65	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	.....	.....	LDA	AEG	61 1/16 (2)	46 1/16	31 1/16	0.1	55
2.12-.500	Alu	7.53	12.90	4	2	2.00-5.40	F	CNM	13.25	.....	5	4.50	AB	AB	C	Pi	2000	.....	.....	LD	AEG	58 1/16 (2)	42	55 1/16	0.1	56
2.12-.500	Alu	7.53	12.90	4	2	2.00-5.40	F	CNM	13.25	.....	6	4.50	AB	AB	C	Pi	2000	.....	.....	LD	AEG	76 (2)	42	55 1/16	0.1	57
1.37-.372	Lyn	4.87	2.83	3	2	1.50-2.72	F	4140	13.25	7.3	3	2.93	AB	A-E	C	Pi	1800	Uni	Fra	AL	E-H	35	25	40	1	58
1.37-.372	Lyn	4.87	2.83	3	2	1.50-2.72	F	4140	13.25	7.3	5	2.93	AB	A-E	C	Pi	1800	Uni	Fra	AL	Ele	47 1/2	25	40	1	59
1.37-.372	Lyn	4.87	2.83	3	2	1.50-2.72	F	4140	13.25	7.3	7	2.93	AB	A-E	C	Pi	1800	Uni	Fra	AL	Ele	58	27	45	1	60
1.31-.500	AA	5.70	4.41	3	2	1.31-3.25	F	1040	10.00	8.12	5	3.75	Own	Own	C	Si	700	Don	Pur	Own	GS	38 1/2	23	49 1/16	2	61
1.47-.500	AA	6.44	6.25	3	2	1.50-3.71	F	1040	11.00	9.34	5	4.12	Own	Own	C	Si	700	Don	Pur	Own	GS	41 1/2	24	51 5/16	1	62
1.53-.532	AA	6.19	7.36	4	2	1.62-4.10	F	1040	13.25	12.72	5	3.25	Own	Own	C	Si	700	Don	Pur	Own	GS	47 1/16	27 1/16	54 1/16	1	63
1.41-.532	AA	6.44	6.25	3	2	1.50-3.71	F	1040	11.00	9.34	7	3.56	Own	Own	C	Si	700	Don	Pur	Own	GS	58 1/16	30 1/16	54 5/16	1	64
1.53-.532	AA	6.19	7.36	4	2	1.62-4.10	F	1040	13.25	12.72	7	3.50	Own	Own	C	Si	700	Don	Pur	Own	GS	60 1/16	31 1/16	59 5/16	0	65
1.88-.625	AA	7.50	12.75	3	2	1.88-5.00	F	1040	13.25	16.73	7	4.12	Own	Own	C	Si	700	Don	Pur	DR	GS	71 1/16	33	71 5/16	0	66
1.12-.375	Alu	4.84	4.00	4	2	.....	.....	CNM	8.00	5.31	2	.....	AB	AB	C	Pi	1650	AC	Pur	DR	Ele	41 1/16	23	30 5/16	.....	67
1.12-.375	Alu	4.84	4.00	4	2	.....	.....	CNM	8.00	5.31	.....	.....	AB	AB	C	Pi	1650	AC	Pur	DR	Ele	47 5/16	22 1/16	33	.....	68
1.12-.375	Alu	4.84	3.56	4	2	.....	.....	CNM	8.00	5.31	.....	.....	AB	AB	C	Pi	1650	AC	Pur	DR	Ele	54 1/16	22 1/16	33	.....	69
1.37-.395	Alu	6.84	7.09	4	2	1.62-3.93	F	CNM	9.37	8.59	7	3.50	AB	AB	C	Pi	1650	AM	Pur	DR	Ele	60 1/16	27 1/16	37 1/16	.....	70
1.62-.500	Alu	7.53	12.39	4	2	2.00-4.65	F	CNM	12.00	13.75	7	4.45	AB	AB	C	Pi	2000	AM	Pur	DR	Ele	68 1/16	34 1/16	54 5/16	.....	71
1.41-.458	AA	5.17	4.82	3	2	1.43-3.62	F	CM	10.80	5.88	7	3.50	AB	AB	C	Pi	1700	Ver	Pur	L-D	Ele	47.48	32.43	42.18	2	72
1.68-.500	AA	5.62	6.50	3	2	1.62-4.21	F	CM	11.25	7.70	7	4.00	AB	AB	C	Pi	1700	Ver	Pur	L-D	Ele	55.93	31.28	46.28	1.2	73
1.68-.500	AA	5.62	7.74	3	2	1.62-4.34	F	CM	11.25	7.70	7	4.00	AB	AB	C	Pi	1700	Ver	Pur	DR	Ele	59.62	35.50	46.28	1	74
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	58 1/16	29 1/16	62 1/16	0	75
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	58 1/16	29 1/16	62 1/16	0	76
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	58 1/16	29 1/16	62 1/16	0	77
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	58 1/16	29 1/16	62 1/16	0	78
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	58 1/16	29 1/16	62 1/16	0	79
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	75 1/16	37	60 1/16	00	80
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	75 1/16	37	54 1/16	00	81
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	76 1/16	37	60 1/16	00	82
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own	.....	Mu	.....	Don	Own	.....	AEG	76 1/16	37	54 1/16	00	83

For abbreviations, see pages 286 and 287

For Directory of the Manufacturers listed above, see page 338

1952 AUTOMOTIVE DIESEL

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL: Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio – to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.) ‡	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	VALVES: Arrangement	VALVES: Intake Port Diameter and Lift (In.)
1	**Murphy—Cont'd**																			
2	22	Own	I	DI	6-6x8½	W	4	1103		180-1200	165-1200	16.00		99	31.5	920-600	♦5200	♦♦8000	V4	1.62-.500
3	*122	Own	I	DI	6-6x8½	W	4	1103		210-1200	190-1200	16.00		114	26.8	950-900	♦5465	♦♦8265	V4	1.62-.500
4	211	Own	I	DI	4-5¾x6½	W	4	675		120-1400	110-1400	16.00		92	40.5	510-1000	♦4450	♦♦6650	V4	1.62-.500
5	*311	Own	I	DI	4-5¾x6½	W	4	675		135-1400	125-1400	16.00		105	37.0	565-1000	♦4825	♦♦6825	V4	1.62-.500
6	212	Own	I	DI	4-6x6½	W	4	735		130-1400	120-1400	16.00		92	37.1	567-1000	♦4450	♦♦6650	V4	1.62-.500
7	*312	Own	I	DI	4-6x6½	W	4	735		145-1400	135-1400	16.00		104	34.2	635-1000	♦4825	♦♦6825	V4	1.62-.500
8	220	Own	I	DI	6-5½x8½	W	4	927		156-1400	145-1400	16.00		88	35.8	685-1000	♦5200	♦♦8000	V4	1.37-.500
9	*320	Own	I	DI	6-5½x8½	W	4	927		168-1400	157-1400	16.00		96	34.8	725-1000	♦5465	♦♦8265	V4	1.37-.500
10	221	Own	I	DI	6-5¾x6½	W	4	1013		174-1400	162-1400	16.00		90	32.1	767-1000	♦5200	♦♦8000	V4	1.62-.500
11	*321	Own	I	DI	6-5¾x6½	W	4	1013		197-1400	184-1400	16.00		103	29.7	850-1000	♦5465	♦♦8265	V4	1.62-.500
12	222	Own	I	DI	6-6x6½	W	4	1103		191-1400	178-1400	16.00		91	29.2	835-1000	♦5200	♦♦8000	V4	1.62-.500
13	*322	Own	I	DI	6-6x6½	W	4	1103		220-1400	205-1400	16.00		105	26.6	945-1000	♦5465	♦♦8265	V4	1.62-.500
14	**Oliver** 77	Lanova	Tr	TC	6-3⅞x3¾	W	4	194			40-1600	15.75	480	103	16.9	146-1000	675		VI	1.08-.312
15	88	Lanova	Tr	TC	6-3½x4	W	4	231			49-1600	15.00	480	104	14.9	176-1000	730		VI	1.22-.359
16	66	Lanova	Tr	TC	4-3½x3¾	W	4	129			29-1600	15.50	480	106	17.8	101-1000	500		VI	1.08-.312
17	**P&H** 187C		T,B,Tr,M,R,I	DI	1-4½x5½	W	2	87	28-1400	27-1400	20-1200	16.00	1200	76	47.5	105-800	950	1100	VI	No Valves
18	287C		T,B,Tr,M,R,I	DI	2-4½x5½	W	2	174	54-1400	53-1400	40-1200	16.00	1200	76	25.8	210-800	1030	1635	VI	No Valves
19	387C		T,B,Tr,M,R,I	DI	3-4½x5½	W	2	261	83-1400	80-1400	60-1200	16.00	1200	76	21.7	315-800	1300	2120	VI	No Valves
20	487C		T,B,Tr,M,R,I	DI	4-4½x5½	W	2	348	110-1400	105-1400	80-1200	16.00	1200	76	19.4	440-800	1550	2530	VI	No Valves
21	687C		T,B,Tr,M,R,I	DI	6-4½x5½	W	2	522	165-1400	158-1400	120-1200	16.00	1200	76	15.8	630-800	1900	3000	VI	No Valves
22	**Red Wing** D4-30	Wau	M	TC	4-3⅞x3¾	W	4	129	35-2400	28-2400	22-1800	17.00	850	82	66.3	90-1400		1460	VI	1.25-.312
23	DO		M	TC	4-4¼x4½	D	4	255	79-2600	75-2400	56-1600	15.00	750	91	33.9	182-1400		1900	VI	1.62-.375
24	42-54HP		M	DI	4-4x5	W	4	251	55-2200	54-2000	43-1500	5.90	500	65	25.6	155-1000		1100	VI	1.62-.445
25	55-60HP		M	DI	4-4½x5¼	W	4	353	62-1600	59-1600	55-1400	5.60	500	65	21.8	230-800		1200	VI	1.75-.450
26	100-125HP		M	DI	6-4½x5½	W	4	525	128-2100	125-2100	106-1500	5.80	500	74	17.0	383-1000		1800	VI	1.87-.530
27	D6-160		M	TC	6-5¼x6	W	4	779	168-2000	138-2000	102-1400	17.50	750	80	42.2	600-1000		4310	VI	2.25-.500
28	D6-200		M	TC	6-6¼x6½	W	4	1197	225-1600	185-1600	152-1300	16.50	750	83	42.2	845-1000		4310	VI	2.37-.656
29	**Scrippa** 7000-1, 2, 3		M	TC	4-4¼x4½	D	4	255	79-2600	68-2600	53-1800	15.00	750	91	23.6	185-1400		1485	VI	2.37-.728
30	8500-1, 2, 3		M	TC	6-3⅞x4½	D	4	390	84-2600	71-2600	59-1800	15.00	750	88	25.2	208-1500		1485	VI	1.62-.375
31	4-166		M	TC	4-3¼x4	D	4	166		48-3000	38-2000	15.00	825	88	25.8	122-1600		980	VI	1.56-.350
32	6-835		M	TC	6-5¾x6	D	4	935		229-2000	185-1600	14.80	750	98	24.8	635-1200		4600	VI	2.60-.500
33	**Sheppard** 14 and 14C		Tr,M,I	PC	1-3x4	N	4	28.0	5.4-1900	4.8-1900	3.50-1800	18.0	650	55	94.0	11-1500	330	425	VI	1.09-.209
34	7D, E		I,Tr	PC	1-4¼x5	W	4	71.0	15-2000	12-1800	11-1800	18.0	625	68	79.5	55-1000	875		VI	1.37-.413
35	13D, E & F		Tr,M,I	PC	2-4¼x5	W	4	142	33-2000	25-1800	22-1800	18.0	625	68	47.7	106-1200	1050	1500	VI	1.37-.313
36	6D, E & F		Tr,M,I	PC	3-4¼x5	W	4	213	50-2000	38-1800	34-1800	18.0	625	68	38.9	161-1200	1325	1750	VI	1.37-.313
37	12D, E & F		T,M,I	PC	6-4¼x5	W	4	426	100-2000	75-1800	67-1800	18.0	625	70	26.6	325-1200	1790	2330	VI	1.37-.313
38	9		M,R,I	PC	1-3½x4	N	4	38.4	8.4-2000	6.1-2000	5.6-2000	18.0	660	55	102.6	25-1400	575	575	VI	1.09-.209
39	17		Tr,M,R,I	PC	2-3½x4	N		76.8	16.8-2000	11.2-2000	11.2-2000	18.0	650	55	44.6	50-1400	500	500	VI	1.09-.209
40	**Sterling** VD6		M,R,I	DI	6-8x9	W	4	2714		330-1200	325-1200	14.00	1000	80	28.2	1685-1000	9160	8850	VI	2.37-.728
41	VDS6S		M,R,I	DI	6-8x9	W	4	2714	750-1200†	660-1200	563-1200	11.35	1340	137	17.4		9775	12770	VI	2.37-.728
42	VDS8S		M,R,I	DI	8-8x9	W	4	3619	1000-1200†	850-1200	750-1200	11.35	1340	137	16.2	3310-1000	12100	17000	VI	2.37-.728
43	Viking DB4		M,I	TC	4-5½x7	W	4	665		90-1200	76-1200	11.80	750	75	50.7	475-1200	4550	6400	VI	2.19-.649
44	Viking DB6		M,I	TC	6-5½x7	W	4	998		170-1500	114-1200	11.80	750	75	45.6	737-1000	5950	5350	VI	2.19-.649
45	Viking DB8		M,I	TC	8-5½x7	W	4	1330		230-1500	152-1200	11.80	750	75	45.0	940-1000	7650	6600	VI	2.19-.649
46	**MAB, IAB, MRAB**		M,I	TC	6-4¼x5¾	W	4	549		110-1800	72-1400	11.8	750	75	52.0	400-1200	3750	3200	VI	1.87-.526
47	**Superior** (6)40		M,I	DI	6-8½x10½	W	4	3575			325-900	12.20	800	80	44.5		14500	16000	VI	3.12-.675
48	40X		M,I	DI	6-8½x10½	W	4	3575			490-900	12.20	900	120	31.6		15500	17000	VI	3.12-.775
49	40L		R	DI	6-8½x10½	W	4	3575			375-1100	12.00	800	76	50.6		19000		V4	3.06-.897
50	40LX		R	DI	6-8½x10½	W	4	3575			500-1100	12.00	860	102	46.0		23000		V4	3.06-.820
51	40ALX		R	DI	6-8½x10½	W	4	3575			575-1100	12.00	1200	138	34.1		23000		V4	3.06-.820
52	**Waukesha** 180DAC	Own	T,Tr,I	TC	4-3⅞x3¾	W	4	129	35-2400	28-2400	22.4-1800	17.00	850	82	23.2	90-1400	520		VI	1.25-.312
53	190DLC		T,Tr,I	TC	6-3⅝x4	W	4	265	64-2200	53-1800	42.5-1800	15.3	750	71		184-1200			VI	1.37-.359
54	148DK		T,I	TC	6-5¼x6	W	4	779	168-2000	138-2000	102-1400	17.5	750	80	21.0	530-1200	2150		VI	2.25-.500
55	6WAKD		T,I	TC	6-6¼x6½	W	4	1197	225-1600	185-1600	152-1300	16.5	750	83	22.3	845-900	3400		VI	2.37-.656
56	6NKD	Own	I	TC	6-7x8¼		4	1905	275-1200	248-1200	202-1050				45.9	1310-600	9285		VI	
57	6LRD		I	TC	6-8½x8½	W	4	2894	386-1050	358-1050	335-900	15.00	800	110	35.8	2150-600	12000		VI	3.75-.704
58	135DK		T,B,Tr	TC	6-4¼x5	D	4	426	138-2800	123-2800	109-2800	17.50		73		320-1400			VI	-.453

ABBREVIATIONS

♦—Without fan or muffler.
♣—Based on automotive or industrial weight.
‡—With full equipment but without radiator or fan.
*—Supercharged.
••—Bottom of gear box to top of heat exchanger.
••—To top of valve cover.
♦—includes radiator.
*—146-2000 for buses
†—With all accessories
♦—Includes reverse and reduction gear.
‡‡—Bottom of base to highest point on engine.
^—Modified
(1)—Horizontal engine.
(2)—Fan to flywheel housing.
(3)—To top of water outlet (highest point).
(5)—All models are available with governed speed of 1400 RPM.
(6)—All engines also built in 8-cyl. models.
(11)—Includes radiator.
(12)—From bottom of pan to air cleaner mounting flange.
(15)—Including radiator and gear box.
s—Shaft horsepower.
A—Air.
AA—Aluminum Alloy.
AB—American Bosch.
AC—AC Spark Plug Co.
ACB—AC or Bosch.
Ach—Air chamber.
A-E—American Bosch or Ex-Cell-O Corp.
AEG—Air, electric or auxiliary gasoline engine.
A-EI—Air or Electric.
AI—Auto-Lite (electric), Ingersoll-Rand (air).
AL—Electric Auto-Lite Co.
Alu—Aluminum.
AM—Air-Maze Corp.
AT—Arma Steel, tin plated.
B—Buses.
BB—Bendix or Bosch.
B-D—Bosch or Democ.
B-P—Bosch or Purolator.
Bur—Burgess
C—Closed.
CA—C.AV and American Bosch
CB—Cuno and Bosch.
CI—Cast Iron.
CM—Chromium molybdenum
CNM—Chrome-nickel molybdenum.
Com—Commercial Filters Corp.
Cun—Cuno Engineering Corp.
D—Dry liners used.
DA—Delco-Remy and Auto-Lite.
DeL—DeLuxe Products Corp.

For Directory of the Manufacturers listed above, see page 338

Additional Diesel engines used in Diesel-Electric Locomotives will be found on page 289

ENGINES—*concluded*

VALVES		PISTON				PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM						STARTING METHOD		OVERALL DIMENSIONS				
Exhaust Port Diameter and Lift (In.)		Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked in—	Material (S.A.E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifices	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Clutch Housing (S.A.E. Numbers)	Line Number
1.62	.500	CI	7.75	23.7	4	2	2.12	4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	76½	37	60½	00	1
1.62	.500	CI	7.75	23.7	4	2	2.12	4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	76½	37	54⅛	00	2
1.62	.500	CI	7.75	22.2	4	2	2.12	4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		AEG	58⅛	29½	62⅛	0	3
1.62	.500	CI	7.75	22.2	4	2	2.12	4.73	F	1045	12.50	17.75	6	4.00	Own	Own		Mu		Don	Own		AEG	58⅛	29½	62⅛	0	4
1.62	.500	CI	7.75	23.7	4	2	2.12	4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		AEG	58⅛	29½	62⅛	0	5
1.62	.500	CI	7.75	23.7	4	2	2.12	4.98	F	1045	12.50	17.75	6	4.00	Own	Own		Mu		Don	Own		AEG	58⅛	29½	62⅛	0	6
1.37	.500	CI	7.75	19.7	4	2	2.12	4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	76½	29½	60½	0	7
1.37	.500	CI	7.75	19.7	4	2	2.12	4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	76½	29½	54⅛	0	8
1.62	.500	CI	7.75	22.2	4	2	2.12	4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	77⅞	29½	60½	0	9
1.62	.500	CI	7.75	22.2	4	2	2.12	4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	77⅞	29½	54⅛	0	10
1.62	.500	CI	7.75	23.7	4	2	2.12	4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	77⅞	29½	60½	0	11
1.62	.500	CI	7.75	23.7	4	2	2.12	4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		AEG	77⅞	29½	54⅛	0	12
.94	.281	IA	4.19	3.88	3	1	1.25	2.50	F	1045	6.75	1.97	4	2.25	AB	AB	C	Pi	1750	Don	F-A	DR	Ele	39⅞	18	29⅞	.....	13
1.03	.362	IA	4.19	4.32	3	1	1.25	2.75	F	1045	6.75	2.56	4	2.62	AB	AB	C	Pi	1750	Don	F-A	DR	Ele	41½	18	31⅝	.....	14
.94	.281	IA	4.19	3.88	3	1	1.25	2.60	F	1045	6.75	1.97	3	2.25	AB	AB	C	Pi	1750	Don	F-A	DR	Ele	30⅝	18	27⅜	.....	15
2.30	.520	AA	6.36	6.75	3	2	1.75	3.85	F	1141	11.87	8.25	2	4.00	BB	BB	C	SI	3000	Don	Ff	AI	A-EI	28⅝	23½	40⅝	.....	16
2.30	.520	AA	6.36	6.75	3	2	1.75	3.85	F	1141	11.87	8.25	3	4.00	BB	BB	C	SI	3000	Don	Ff	AI	A-EI	32¼	28⅛	40⅝	.....	17
2.30	.520	AA	6.36	6.75	3	2	1.75	3.85	F	1141	11.87	8.25	4	4.00	BB	BB	C	SI	3000	Don	Ff	AI	A-EI	36⅞	28⅛	40⅝	.....	18
2.30	.520	AA	6.36	6.75	3	2	1.75	3.85	F	1141	11.87	8.25	5	4.00	BB	BB	C	SI	3000	Don	Ff	AI	A-EI	45½	28⅛	40⅝	.....	19
2.30	.520	AA	6.36	6.75	3	2	1.75	3.85	F	1141	11.87	8.25	7	4.00	BB	BB	C	Si	3000	Don	Ff	AI	A-EI	59⅛	28⅛	40⅝	.....	20
1.00	.281	CI	4.75	3.28	3	2	1.25	2.75	F	1045	6.75	1.97	3	2.25	AB	AB	C	Pi	1800	Opt	Opt	DR	Ele	42⅞	24⅛	29⅝	2	21
1.12	.375	Alu	4.84	4.47	4	2	1.18	3.70	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650		Pur	LN	Ele	50⅜	28⅛	35⅞	2	22
1.25	.453	CI	5.12	4.30	3	1	1.12	3.06	F	1045	8.75	3.56	3	2.62	AB	Hes	O	Mu	750		Mic	DR	Ele	48⅛	24	33⅛	2	23
1.50	.450	CI	5.96	6.00	3	1	1.31	4.06	F	1045	10.50	5.30	3	2.37	AB	Hes	O	Mu	750		Mic	AL	Ele	52½	21¼	38⅛	2	24
1.37	.469	Alu	6.50	4.00	3	1	1.37	3.87	F	1045	10.45	5.31	7	3.25	AB	Hes	O	Mu	750		Mic	DR	Ele	78⅝	29	41⅞	1	25
1.81	.531	Alu	7.25	.....	4	2	1.87	4.50	F	4145	11.75	.....	7	4.25	AB	AB	C	Pi	2000	Opt	Com	DR	Ele	74⅞	32⅛	47⅛	0	26
2.00	.656	Alu	.....	.....	3	2	2.18	5.37	F	4145	13.25	.....	7	4.75	AB	AB	C	Pi	2000	Opt	Com	DR	Ele	86⅛	34⅛	51⅛	0	27
1.12	.375	Alu	4.84	4.47	4	2	1.18	3.70	F	CNM	8.00	5.31	5	3.00	AB	AB	C	Pi	1650	AC	Pur	DR	Ele	46⅝	24⅛	32¼	4	28
1.12	.375	Alu	4.84	3.56	4	2	1.18	3.20	F	CNM	8.00	5.31	7	3.00	AB	AB	C	Pi	1650	AC	Pur	DR	Ele	53⅛	24⅛	32¼	4	29
1.12	.350	Alu	4.03	3.20	3	2	2.87	1.12	F	CNM	7.75	4.20	5	2.75	AB	AB	C	Pi	1650	AM	Pur	DR	Ele	50	23¼	31⅝	.....	30
1.90	.500	Alu	7.53	12.60	4	2	2.00	4.90	F	CNM	12.00	13.75	7	4.50	AB	AB	C	Pi	2000	AM	Pur	DR	Ele	86⅛	36⅛	50⅛	.....	31
1.09	.209	CI	3.81	2.26	3	2	1.06	2.50	F	1035	8.00	1.85	2	2.00	Own	Own	O	Si	1	AM	AC	AL	E-H	18½	20¾	28½	2	32
1.37	.313	CI	5.46	6.20	3	2	1.50	4.00	F	1035	10.87	6.60	2	2.73	Own	Own	O	Si	1	AM	Fra	AL	Opt	23	23	38	2	33
1.37	.313	CI	5.93	6.20	3	2	1.50	4.00	F	1035	10.87	6.60	3	2.75	Own	Own	O	Si	1	AM	Fra	AL	Opt	30	23	38	3	34
1.37	.313	CI	5.31	6.20	3	2	1.50	4.00	F	1035	10.87	6.60	4	2.75	Own	Own	O	Si	1	AM	Fra	AL	Ele	35	23	38	3	35
1.37	.313	CI	5.46	6.20	3	2	1.50	4.00	F	1035	10.87	6.60	7	3.18	Own	Own	O	Si	1	AM	Fra	AL	Ele	50	24	40	3	36
1.09	.209	CI	3.81	2.26	3	2	1.06	2.93	F	Fg	8.00	1.65	2	2.00	Sp	Sp	O	Si	1	AM	Fra	AL	E-H	14½	22	30	N	37
1.09	.209	CI	3.81	2.26	3	2	1.06	2.93	F	Fg	8.00	1.65	3	2.00	Sp	Sp	O	Si	1	AM	Fra	AL	E-H	22½	22	29	5	38
2.37	.728	Alu	10.25	30.88	4	2	3.00	6.93	F	4340	18.00	46.05	7	6.00	BB	BB	C	Mu	3000	Opt	Cun	LN	A-EI	.....	.....	.....	00	39
2.37	.728	AA	9.62	26.25	4	1	3.00	6.93	F	4340	18.00	46.05	7	6.00	AB	AB	C	Mu	3300	AM	Cun	LN	Ele	114¼	39¼	64	00	40
2.37	.728	AA	9.62	26.25	4	1	3.00	6.93	F	4340	18.00	46.05	9	6.00	AB	AB	C	Mu	3300	AM	Cun	LN	Ele	134½	39¼	64	00	41
1.81	.536	CI	8.00	15.00	4	2	2.12	4.50	F	1040	14.25	19.11	5	4.50	AB	AB	C	Pi	1600	Bur	Del.	LN	Ele	.....	.....	.....	0	42
1.81	.536	CI	8.00	15.00	4	2	2.12	4.50	F	1040	14.25	19.11	7	4.50	AB	AB	C	Pi	1600	Bur	Del.	LN	Ele	.....	.....	.....	0	43
1.81	.536	CI	8.00	15.00	4	2	2.12	4.50	F	1040	14.25	19.11	9	4.50	AB	AB	C	Pi	1600	Bur	Del.	LN	Ele	.....	.....	.....	0	44
1.50	.526	CI	6.68	7.50	4	2	1.75	3.59	F	1040	11.50	8.96	7	3.50	AB	AB	C	Pi	1600	Bur	Del.	LN	Ele	56	30	52½	1	45
3.12	.875	CI	13.69	66.20	4	3	3.50	7.00	F	1045	21.00	75.00	7	6.00	B-D	B-D	C	Mu	2500	AM	Pur	Own	A	112	40	70	.....	46
3.12	.775	CI	13.69	66.20	4	3	3.50	7.00	F	1045	21.00	75.00	7	6.00	B-D	B-D	C	Mu	3000	AM	Pur	Own	A	148	48	70	.....	47
3.06	.697	CI	11.72	73.10	4	3	3.50	7.00	F	1045	21.00	67.10	7	6.00	BB	BB	C	Mu	3000	AM	Pur	Opt	Ele	129	56	74	.....	48
3.06	.620	CI	11.72	73.10	4	3	3.50	7.00	F	1045	21.00	67.10	7	6.00	BB	BB	C	Mu	3500	AM	Pur	Opt	Ele	148	56	74	.....	49
3.06	.620	CI	11.72	73.10	4	3	3.50	7.00	F	1045	21.00	67.10	7	6.00	BB	BB	C	Mu	3500	AM	Pur	Opt	Ele	148	56	74	.....	50
1.00	.281	CI	4.75	3.28	3	2	1.25	2.75	F	1045	6.75	1.97	3	2.25	AB	AB	C	Pi	1800	Opt	Opt	Opt	Ele	30½	19	27⅛	4	51
1.18	.362	CI	4.18	.....	3	1	1.25	3.00	F	1045	6.75	.....	4	2.62	AB	AB	C	Pi	1500	Opt	Fra	Opt	Ele	42⅝	22	29⅛	3	52
1.81	.531	Alu	7.25	.....	4	2	1.87	4.50	F	4145	11.75	.....	7	4.25	AB	AB	C	Pi	2000	Opt	Com	DRW	E-Q	55⅛	25¾	48⅛	2	53
2.00	.656	Alu	3.37	.....	3	2	2.18	5.37	F	4145	13.25	.....	7	4.75	AB	AB	C	Pi	2000	Opt	Com	DRW	E-Q	65⅝	30⅛	50⅞	0	54
.....		AA	.....	.....	3	1	2.50	6.03	F	4145	.....	.....	7	5.25	AB	AB	C	Pi	2000	Opt	Opt	Own	G	62	42	60	00	55
2.75	.704	CI	11.34	67.50	4	2	3.00	7.00	F	4145	21.37	40.00	7	5.50	AB	AB	C	Pi		Vor	Com	Own	G	96	47	66	00	56
.....	.378	Alu	4.94	.....	3	1	1.50	3.62	F	1045	9.50	.....	7	3.25	AB	AB	C	Pi	1800	Opt	Opt	Opt	Ele	48	26	33	3	57

Dem—Demco.
DI—Direct injection.
D-N—Delco-Remy or Novo.
Don—Donaldson Co.
DR—Delco-Remy Div.
DRW—Delco or Waukesha.
EAH—Air, Electric, or Hand.
E-G—Electric or auxiliary gasoline engine.
E-H—Electric or hand.
Ele—Electric.
F—Floating.
F-A—Fram or AC.
Ff—Fulflo.
Fg—Forging.
Fra—Fram Corp.
G—Auxiliary gasoline engine.
GS—Gasoline and spark ignition.
Ha—Hand.
Hes—Hesselman.
I—Industrial.
IA—Iron alloy.
HI—Horizontally In-head.
LB—Leece Neville or Buda.
L-D—Leese Neville or Delco Remy
LDA—Leece-Neville, Delco-Remy or Autolite.
LN—Leece Neville Co.
Lyn—Lynite.
M—Marine.
Mic—Michiana Products Corp.
MW—Marine Work Boat.
N—No or none.
Mu—Multiple.
Nug—Nugent.
O—Open.
O-D—Own or Delco-Remy.
Opt—Optional.
PC—Precumbustion chamber.
Pi—Fintle.
P-L—Purolator or Luberfiner.
P-S—Purolator or Stewart-Warner.
Pur—Purolator Products, Inc.
R—Railcars.
Sc—Scintilla Magneto Div.
Sh—Shaft torque; Shaft RPM.
Si—Single.
Sp—Sheppard.
T—Trucks.
TC—Turbulence chamber.
Tr—Tractors.
Uni—United Air Cleaner Div.
VI—Vertically In-Head.
V2—Vertically in head, 2 inlets used
V4—Vertically in-head 2 exhaust and 2 intake valves per cylinder.
Vor—Vortex.
Vwg—Varies with gear.
W—Wet liners used.
Wau—Waukesha.
W-L—WGB Oil Clarifier or Liberfiner.
WP—Winslow or Purolator.
Win—Winslow Filter.
WIP—Wix or Purolator.

For Directory of the Manufacturers listed above, see page 338

Additional Diesel engines used in Diesel-Electric Locomotives will be found on page 289

1952 U. S. SMALL

MAKE AND MODEL	Designed for Use	Number of Cycles	ENGINE									GOV-ERNOR		Ignition System Type	FUEL SYSTEM		Fuel Used	Starting Method
			Type	No. of Cylinders	Bore and Stroke (In.)	Total Displacement (Cu. In.)	Compression Ratio (to – 1)	Valve Location	Horsepower: Rated at RPM	Horsepower: Continuous at RPM	Torque—Lb. Ft. at RPM	Weight (Lb.)	Used	Type		Type	Make		
AIR COOLED																			
Briggs & Stratton																			
5S	General Purpose	4	Ver	1	2 x1½	4.71	5.25	L	1.0-3200	.85-3200	1.6-3200	30	Y	Av	Mag	MV	Own	G	Rr
6S	General Purpose	4	Ver	1	2x2	6.28	5.86	L	1.6-3200	1.4-3200	2.6-3200	33	Y	Av	Mag	MV	Own	G	Rr
6HSF	Lm	4	Hor	1	2x2	6.28	5.86	L	1.6-3200	1.4-3200	2.6-3200	38	Y	Av	Mag	MV	Own	G	R
N	General Purpose	4	Ver	1	2x2	6.28	5.86	L	2.0-3600	1.7-3600	2.9-3600	33	Y	MA	Mag	Car	Own	G	Rr
6HF	Lm	4	Hor	1	2x2	6.28	5.86	L	2.0-3600	1.7-3600	2.9-3600	39	Y	Av	Mag	Car	Own	G	R
8	General Purpose	4	Ver	1	2¼x2	7.95	5.40	L	2.5-3600	2.1-3600	3.7-3600	36	Y	MA	Mag	Car	Own	G	Rr
8HF	Lm	4	Hor	1	2¼x2	7.95	5.40	L	2.5-3600	2.1-3600	3.7-3600	42	Y	Av	Mag	Car	Own	G	R
9	General Purpose	4	Ver	1	2¼x2¼	8.95	5.40	L	3.1-3200	2.6-3200	5.1-3200	61	Y	Me	Mag	Car	Own	G	HR
14	General Purpose	4	Ver	1	2½x2½	14.21	5.40	L	5.1-3200	4.3-3200	8.4-3200	76	Y	Me	Mag	Car	Own	G	HR
23	General Purpose	4	Ver	1	3x3¼	22.97	5.40	L	8.2-3200	7.0-3200	13.5-3200	98	Y	Me	Mag	Car	Own	G	HR
Clinton																			
350	General Purpose	4	Ver	1	2x1½	4.71	5.20	L	1.1-3600	1.0-3200	1.5-3600	27	Y	Av	Mag	MV	Own	G	Rr
A300	General Purpose	4	Ver	1	2x1½	4.71	5.20	L	1.3-3600	1.2-3200	1.9-3600	29	Y	Av	Mag	Car	Cart	G	Rr
VS300	General Purpose	4	Hor	1	2x1½	4.71	5.20	L	1.3-3600	1.2-3200	1.9-3600	35	Y	Av	Mag	Car	Cart	G	Rr
650	General Purpose	4	Ver	1	2x1½	5.89	5.80	L	1.6-3600	1.5-3200	2.3-3600	35	Y	Av	Mag	MV	Own	G	Rr
B700	General Purpose	4	Ver	1	2x1½	5.89	5.80	L	2.0-3600	1.8-3200	2.9-3600	36	Y	Me	Mag	Car	Cart	G	Rr
VS700	General Purpose	4	Hor	1	2x1½	5.89	5.80	L	2.0-3600		2.9-3600	36	Y	Av	Mag	Car	Cart	G	Rr
C1100	General Purpose	4	Ver	1	2½x1⅞	8.30	6.20	L	3.0-3600	2.9-3200	4.4-3600	42	Y	Me	Mag	Car	Cart	G	Rr
Continental																			
AA7	General Purpose	4	(a)	1	2½x2	7.10	5.70	L	1.6-2800	1.5-2600	3.03-2600	41	Y	MA	Mag	Car	ZT	G	BR
AA7B	General Purpose	4	(a)	1	2½x2	7.10	6.00	L	2.18-3600	2.0-3400	3.0-3400	41	Y	MA	Mag	Car	ZT	G	BR
AU7	General Purpose	4	(a)	1	2½x2	7.10	5.70	L	1.6-2800	1.5-2600	3.03-2600	41	Y	MA	Mag	Car	ZT	G	BR
AU7B	General Purpose	4	(a)	1	2½x2	7.10	6.00	L	2.18-3600	2.0-3400	3.0-3400	41	Y	MA	Mag	Car	ZT	G	BR
AW-7	Lm	4	(b)	1	2½x2	7.10	5.70	L	1.6-2800	1.5-2600	3.03-2600	41	Y	Av	Mag	Car	ZT	G	BR
AW-7B	Lm	4	(b)	1	2½x2	7.10	6.00	L	2.18-3600	2.0-3400	3.0-3400	41	Y	Av	Mag	Car	ZT	G	BR
AC-6	General Purpose	4	(a)	1	2½x2	7.10	5.70	L	1.6-3200	1.5-3000	2.9-2000	37	Y	Av	Mag	MV	Own	G	BR
AC-5	General Purpose	4	(a)	1	2½x2	7.10	5.70	L	1.1-2800	1.0-2600	2.15-1800	37	Y	Av	Mag	MV	Own	G	BR
AD-7	Lm	4	(a)	1	2½x2	7.10	5.70	L	1.6-2800	1.5-2600	3.03-2600	43	Y	Av	Mag	Car	ZT	G	BR
AD-7B	Lm	4	(a)	1	2½x2	7.10	6.00	L	2.18-3600	2.0-3400	3.0-3400	43	Y	Av	Mag	Car	ZT	G	BR
Cushman																			
Husky-M6	General Purpose	4	Ver	1	2¾x2¾	12.30	4.70	L	3.0-3000	2.6-3000	5.2-2000	65	Y	Fb	Mag	Car	Til	G	Rr
Husky-M7	General Purpose	4	Ver	1	2¾x2¾	14.90	5.40	L	4.5-3000	3.8-3000	7.9-2000	65	Y	Fb	Mag	Car	Til	G	Rr
Husky-M8	General Purpose	4	Ver	1	2⅞x2¾	17.80	5.90	L	5.0-3000	4.3-3000	9.5-2000	65	Y	Fb	Mag	Car	Til	G	Rr
Gladden																			
40	General Purpose	4	Ver	1	2½x3	14.70	4.50	L	4.3-3200	4.3-3200	8.4-2200	79	Y	Fb	Mag	Car	MS	G,K	Rr
40M	Marine	4	Ver	1	2½x3	14.70	4.50	L	4.3-3200	4.3-3200	8.4-2200	80	Y	Fb	Mag	Car	MS	G	Rr
AB	General Purpose	4	Hor	1	2¾x3	17.80	5.40	L	5.0-2600	5.0-2600	9.5-2500	68	Y	Av	Mag	Car	MS	G,K	Rr
50	General Purpose	4	Ver	1	2½x3	14.70	5.70	L	5.25-3200	5.25-3200	9.2-2500	81	Y	Fb	Mag	Car	MS	G	Rr
75	General Purpose	4	Ver	1	2½x3	19.40	5.70	L	7.0-3200	7.0-3200	13.5-2200	93	Y	Fb	Mag	Car	MS	G,K	Rr
75ES	General Purpose	4	Ver	1	2½x3	19.40	5.70	L	6.5-3200	6.5-3200	11.8-3200	136	N		Bat	Car	MS	G	Ele
75M	Marine	4	Ver	1	2½x3	19.40	5.70	L	7.0-3200	7.0-3200	11.8-3200	86	N		Mag	Car	MS	G	Rr
75MES	Marine	4	Ver	1	2½x3	19.40	5.70	L	6.5-3200	6.5-3200	11.0-3200	138	N		Bat	Car	MS	G	Ele
MC	Motorcycle	4	Ver	1	2½x3	19.40	7.00	L	9.0-4000	7.0-3000	12.3-3000	65	N		Mag	Car	Am	G	Pe
Homelite																			
20	GS,Pu,Ca,Bl	2	Ver	1	2⅝x1¼	6.70	5.50	(e)	3.5-3600	3.5-3600		20	Y	Va	Mag	Car	Til	G,K	Hc
23	GS Pu,Bl	2	Ver	1	2½x2¼	8.40	5.50	(e)	4.0-3600	4.0-3600		30	Y	Va	Mag	Car	Own	G,K	Hc
24	General Purpose	2	Ver	1	2⅝x2½	11.40	5.50	(e)	6.0-3600	6.0-3600		40	Y	Va	Mag	Car	OZ	G,K	Hc
Jacobsen																			
J100	Lm	2	Hor	1	2x1¼	4.70	5.50		1.50-3600	1.50-3600	2.20-3800	19½	Y	Av	Mag	Car	Til	G	Rr
J150	Lm	2	Hor	1	2¼x1¾	6.90	5.00		1.75-3000	1.75-3000	3.00-3000	35[1]	Y	Av	Mag	Car	Til	G	Rr
Kohler																			
K90	General Purpose	4	Ver	1	2¾x2	8.88	6.00	L	3.60-3600	3.10-3800	5.30-3600	44	Y	Fb	Mag	Car	Car	G	Rr
Lauson																			
LMH	GS, Lm	4	Ver	1	1⅝x1¼	3.11	5.90	L	1.05-3800	.75-3800	1.52-3800	22	Y	Fb	Mag	Car	Til	G	R
RSH	General Purpose	4	Ver	1	2x1⅞	5.90	5.80	L	2.00-3600	1.50-3600	2.90-3600	28	Y	Fb	Mag	Car	Til	G	R
TLH	General Purpose	4	Ver	1	2¼x2¼	8.94	5.80	L	3.00-3200	2.50-3200	4.70-3200	52	Y	Fb	Mag	Car	Til	G	R
PAH	General Purpose	4	Ver	1	2⅝x2⅝	17.85	5.00	L	5.50-3000	4.50-3000	9.50-2700	85	Y	Fb	Mag	Car	Til	G	R
TLV	Lm	4	Hor	1	2¼x2¼	8.94	5.80	L	3.00-3200	2.50-3200	4.70-3200	58	Y	Fb	Mag	Car	Til	G	R
RSV800	Lm	4	Hor	1	2x1⅞	5.90	5.80	L	2.00-3600	1.50-3600	2.90-3600	33	Y	Fb	Mag	Car	Til	G	R
55S100	Lm	4	Ver	1	2x1⅞	5.90	5.80	L	1.60-3200	1.35-3200	2.70-3200	33	Y	Fb	Mag	MV	Own	G	R
55A, 55AB	General Purpose	4	Ver	1	2x1⅞	5.90	5.80	L	2.00-3600	1.50-3600	2.90-3600	(c)	Y	Fb	Mag	Car	Til	G	R
McCulloch																			
2100	GS,Pu,Af,Lm	2	Hor	1	2x1½	4.71	5.90		1.50-3600	1.25-3200	2.20-3000	17	Y	Me	Mag	Car	Own	G	Rc
3-25	CS,Af	2	Ver	1	2x1½	4.71	6.40		3.00-4200	2.50-3600	4.60-3600	25	N		Mag	Car	Own	G	Rc
1225B	CS,Pu	2	Hor	1	2½x2	7.95	6.50		5.10-4200	4.40-3200	6.30-3000	25	N		Mag	Car	Own	G	Rc
7-55	CS,ED	2	Hor	1	2½x2	9.82	6.50	P	7.00-4500		8.80-3500		N		Mag	Car	MC	G	R
Onan																			
AH	GS,In	4	Ver	1	2¼x2¼	11.05	6.23	L	3.30-3000	2.60-3000	6.00-3000	55	Y	:	BM	Car	Zen	G	ER
Com-1B	In	4	Ver	1	2⅝x2⅝	16.30	4.10	L	3.45-2400	2.70-2400	7.10-2400	124	Y	:	Mag	Car	Zen	Ng,G	ER
1B	GS	4	Ver	1	2⅝x2⅝	16.30	4.80		2.50-1800	2.50-1800	7.30-1800	177	Y	:	Mag	Car	Zen	Ng,G	Rr
BH	GS,In	4	Op	2	2¼x2¼	22.10	6.23		6.70-3000	5.30-3000	12.0-3000	85	Y	:	BM	Car	MS	G	ER
CK	General Purpose	4	Op	2	3x2⅝	38.80	6.20	L	10.10-3000	8.60-3000	18.0-3000	95	Y	:	BM	Car	MS	Ng,G	ER
LK	GS,In	4	Ver	1	3x2⅝	19.40	5.80	L	4.50-3000	4.00-3000	10.00-1800		Y	:	BM	Car	Zen	G	HE
Reo																			
211F, 338F	Lm	4	*	1	2x1¾	5.50	6.22	L	1.75-4000	1.40-3400	2.32-2400	26	Y	Av	Mag	Car	Cart	G	Hc
404F	Lm	4	*	1	2x1¾	5.50	6.22	L	1.25-3000	1.10-2500	2.20-3000	27	Y	Av	Mag	MV	Own	G	Hc
Salsbury																			
600	General Purpose	4	*	1	3x2⅝	19.40		I	6.50-3200	3.50-2400		72	Y	Ce	Mag	Cas	MS	G	Pe
United																			
1½ H.P.	General Purpose	4	Ver	1	2⅛x2½	11.08		L				70	Y		Mag	Car	Til	G	Pe
2 H.P.	General Purpose	4	Ver	1	2⅛x2½	13.53		L				70	Y		Mag	Car	Til	G	Pe
4 H.P.	General Purpose	4	Ver	1	2⅝x2½	14.99		L				75	Y		Mag	Car	Til	G	Pe
2750	*	2	Hor	1	1⅝x1⅜	3.76	65PSI	Re	1.50-3600	1.50-3600	4.50-3600	20	N		Mag	Car	Til	G	R
West Bend																			
2700	Lm	2	Hor	1	1⅝x1⅜	3.76	65PSI	Re	1.50-3600	1.50-3600	4.50-3600	19¾	Y	Av	Mag	Car	Til	G	R
Wisconsin																			
ABN	General Purpose	4	Ver	1	2⅛x2⅝	13.50	5.65	L	4.60-3600	3.70-3600	7.50-2400	77	Y	Ce	Mag	Car	MS	G	R
AKN	General Purpose	4	Ver	1	2⅞x2⅝	17.80	5.13	L	6.00-3600	4.80-3600	10.40-2400	77	Y	Ce	Mag	Car	MS	G	R
AEH	General Purpose	4	Ver	1	3x3⅛	23.00	4.90	L	6.10-2600	4.90-2600	13.00-2000	130	Y	Ce	Mag	Car	Zen	G	R
AEN	General Purpose	4	Ver	1	3x3⅛	23.00	5.00		7.50-3000	6.00-3000	15.40-2200	110	Y	Ce	Mag	Car	Zen	G	R
AFH	General Purpose	4	Ver	1	3¼x4	33.20	4.60	L	7.20-2200	5.75-2200	19.80-1400	180	Y	Ce	Mag	Car	Zen	G	Hc
AGH	General Purpose	4	Ver	1	3¼x4	38.50	4.80	L	8.40-2200	6.70-2200	24.20-1400	180	Y	Ce	Mag	Car	Zen	G	Hc

For abbreviations, see page 289

For Directory of the Manufacturers listed above, see page 338

GASOLINE ENGINES

MAKE AND MODEL	Designed for Use	Number of Cycles	ENGINE: Type	No. of Cylinders	Bore and Stroke (In.)	Total Displacement (Cu. In.)	Compression Ratio (to —1)	Valve Location	Horsepower: Rated at RPM	Horsepower: Continuous at RPM	Torque—Lb. Ft. at RPM	Weight (Lb.)	GOVERNOR: Used	GOVERNOR: Type	Ignition System Type	FUEL SYSTEM: Type	FUEL SYSTEM: Make	Fuel Used	Starting Method
AIR COOLED—Continued																			
Wisconsin (cont.) AHH	General Purpose	4	Ver	1	3½x4	41.30	4.80	L	9.20-2200	7.40-2200	25.00-1300	180	Y	Ce	Mag	Car	Zen	G	Hc
TE	GS,Co,Pu,Af	4	Ver	2	3x3¼	45.90	4.50	L	11.20-2600	9.00-2600	27.10-1600	220	Y	Ce	Mag	Car	Zen	G	Hc
TF	General Purpose	4	Ver	2	3½x3¼	53.90	4.67	L	13.30-2600	10.60-2600	32.00-1600	220	Y	Ce	Mag	Car	Zen	G	Hc
VE4	General Purpose	4	Vee	4	3x3¼	91.90	4.80	L	22.00-2600	17.60-2600	50.00-1600	295	Y	Ce	Mag	Car	Zen	G	Hc
VF4	General Purpose	4	Vee	4	3½x3½	107.70	4.80	L	25.00-2400	20.00-2400	58.20-1600	295	Y	Ce	Mag	Car	Zen	G	Hc
VP4	General Purpose	4	Vee	4	3½x4	154.00	4.67	L	31.00-2200	24.60-2200	68.00-1400	410	Y	Ce	Mag	Car	Zen	G	Hc
WATER COOLED																			
Cushman Cub R-14	General Purpose	4	Hor	1	3¼x4½	37.33	4.50	L	3.00-850	3.00-850	18.40-600	195	Y	Fb	Mag	MV	Own	G,K,Ng	Hc
Cub R-20	General Purpose	4	Hor	1	3½x4½	43.28	4.10	L	3.70-850	3.70-850	22.50-700	235	Y	Fb	Mag	MV	Own	G,K,Ng	Hc
Cub R-30	General Purpose	4	Hor	1	3¾x4½	49.70	4.64	L	4.50-850	4.50-850	28.40-800	245	Y	Fb	Mag	MV	Own	G,K,Ng	Hc
Cub R-40	General Purpose	4	Hor	1	4x4½	56.50	5.10	L	5.40-850	5.40-850	35.00-800	255	Y	Fb	Mag	MV	Own	G,K,Ng	Hc
Kermath	Tr,In,M	4	Ver	1	2⅝x2¼	14.20	5.00	L	5.00-3200		10.00-2700	62	Y		Mag	Car	Zen	G	ER
	Tr,In,M	4	Ver	2	2⅝x2⅝	28.40	5.00	L	10.00-3200		19.00-2700	86	Y		Mag	Car	Zen	G	ER
LeRoi D91	General Purpose	4	Ver	4	2⅞x3½	90.80	5.80	L	22.00-2200	17.00-2000	60.00-1500	510	Y	Fb	BM	CM	ZE	G,D,Ng	HE
D140	General Purpose	4	Ver	4	3½x3⅝	140.00	5.85	I	33.50-2400	26.50-2200	94.00-1300	650	Y	Fb	BM	CM	ZE	G,D,Ng	HE
Onan W3M or S	GS	4	Ver	2	3x2¾	38.80	5.50	.	7.10-1800	7.10-1800	20.4-1850	1450	Y	‡	BM	Car	Zen	G,D,Ng	HE
United 2R14	Af	4	Hor	1	3¼x4½	37.38		L				195	Y	(d)	Mag	Car	Til	G,K,D	Hc
3R20	Af	4	Hor	1	3½x4½	43.25		L				235	Y	(d)	Mag	Car	Til	G,K,D	Hc
4R30	Af	4	Hor	1	3¾x4½	49.75		L				245	Y	(d)	Mag	Car	Til	G,K,D	Hc
Universal AFTC	GS	4	Ver	2	3x3½	49.50	5.79	L	5.00-1200	6.00-1350	25.00-1200	385	Y	Me	BM	Car	Str	G	HE
AFC	GS,In	4	Ver	4	3x3½	99.00	5.79	L	19.00-1800	18.00-1800	53.00-1800		Y	Me	BM	Car	Str	G,Ng	HE

ABBREVIATIONS

‡—Flywheels on camshaft.
†—Weight includes generator.
♣—Cylinder 45° from horizontal.
•—Horizontal shaft applications.
(a)—Inclined 20° up from horizontal.
(b)—Vertical shaft engine.
(c)—55A—33 lbs., 55AB—28 lbs.
(d)—Automatic, controlled by flywheel.
(e)—Rotary intake valve in crankcase.
Af—Auxiliary farm implement equipment.
Am—Amal. **Av**—Air vane.
Bat—Battery. **Bl**—Blowers.
BM—Battery and magneto.
BR—Belt, pulley or recoil.
Car—Carburetor.
Cart—Carter Carburetor Corp.
Ce—Centrifugal.
CM—Carburetor or mixing valve.
Co—Air compressor.
Cs—Chain saws.
D—Distillate.
ED—Earth drill.
Ele—Electric.
ER—Electric or rope.
Fb—Flyball.
G—Gasoline.
GS—Generator sets.
Hc—Hand crank.
HE—Hand crank or electric.
Hor—Horizontal.
HR—Hand crank or rope.
I—In head.
In—Industrial.
K—Kerosene.
L—"L" head.
Lm—Lawn mowers.
M—Marine.
MA—Mechanical or air vane.
Mag—Magneto.
MC—McCulloch.
Me—Mechanical.
MS—Marvel-Schebler Carburetor Div.
MV—Mixing valve.
N—No or none.
NgG—Combination gas and gasoline.
Op—Opposed.
OZ—Own and Zenith.
P—Ports.
Pe—Pedal.
PSI—Pounds per square inch.
Pu—Pumps.
R—Rope.
Rc—Recoil.
Re—Reed valves.
Rr—Recoil or rope.
Str—Stromberg Carburetor Div.
Til—Tillotsen Mfg. Co.
Tr—Tractors.
Va—Valve.
Ver—Vertical.
Y—Yes.
ZE—Zenith carburetor, Ensign mixing valve.
Zen—Zenith Carburetor Div.
ZT—Zenith or Tillotsen.

DIESEL ENGINES FOR USE IN DIESEL-ELECTRIC LOCOMOTIVES

These Diesel engines are in addition to the Automotive Diesels shown on pages 282 through 287

ENGINE MAKE AND MODEL	Cylinder Arrangement	Cycle	No. of Cylinders, Bore and Stroke (In.)	Displacement (Cu. In.)	Compression Ratio	Maximum Brake HP at Specified RPM	Continuous HP at Specified RPM	Supercharger Used	Weight (Lb.)	OVERALL DIMENSIONS (In.): Length	Width	Height
Alco	I	4	12-9x10½		13.00	†1600	†1000	Yes				
	I	4	16-9x10½		13.00	†2250	†1000	Yes				
	I	4	8-12½x13		12.30	†1000	†740	Yes				
	I	4	6-12½x13		10.86	1625	†740	No				
Baldwin 606	I	4	6-12¾x15½	11880	14.88	875-625		No	44100	206⅝	62½	97½
606A	I	4	6-12¾x15½	11880	13.45	1315-625		Yes	45100	206⅝	62½	97½
608A	I	4	8-12¾x15½	15840	13.45	1750-625		Yes	55500	246⅜	69½	97½
Cooper-Bessemer FWL-6T	I	4	6-9x10½	4008	12.70	825-1000	825-1000	Yes	22000	134	58 9/16	80½
FWL-8T	I	4	8-9x10½	5344	12.70 ‡	1100-1000	1100-1000	Yes	25000	164	58 9/16	80½
FVL-6T	V	4	6-9x10½	5344	12.70 ‡	1100-1000	1100-1000	Yes	21500	99½	68	75½
FVL-12T	V	4	12-9x10½	8016	12.70 ‡	1650-1000	1650-1000	Yes	28500	128½	68	75½
FVL-16T	V	4	16-9x10½	10688	12.70 ‡	2200-1000	2200-1000	Yes	35000	159½	68	75½
Electro-Motive 6-567A	V	2	6-8½x10	3402	16.00	†800	800	No**	14500	115 5/16	64⅞	84 1/16
8-567B	V	2	8-8½x10	4536	16.00	†800	800	No**	20000	139 3/16	62 9/16	92⅛
12-567B	V	2	12-8½x10	6804	16.00	†1125-1200*	800	No**	25000	174 1/16	64⅞	90 1/16
16-567B	V	2	16-8½x10	9072	16.00	†1500	800	No**	30500	212 1/16	62 5/16	88 29/32
Fairbanks-Morse 6-38D8⅛	O	2	6-8⅛x10	6222	16.10	1275-850	1275-850	No	27200	174½	67	108 9/32
8-38D8⅛	O	2	8-8⅛x10	8296	16.10	1720-850	1720-850	No	33000	201½	67	108 9/32
10-38D8⅛	O	2	10-8⅛x10	10370	16.10	2120-850	2120-850	No	39250	228½	67	108 9/32
12-38D8⅛	O	2	12-8⅛x10	12444	16.10	2540-850	2540-850	No	45500	256¾*	67	108 9/32

ABBREVIATIONS

I—In line.
V—Vee type.
†—Horsepower available for traction.
**—Engine has Roots type blower for scavenging use only—not supercharged.
*—1125 H.P. for passenger service; 1200 H.P. for switching service.
O—Opposed piston.
*—Along center line.

For Directory of the Manufacturers listed above, see page 338

1952 U. S. OUTBOARD MOTORS

MAKE AND MODEL	Power Head	Number of Cylinders	Cylinder Material	Bore and Stroke (In.)	Piston Displacement (Cu. In.)	Engine Type	Brake Hp. at R.P.M. O.B.C. Rating	Engine Weight (Lb.) Fully Equipped	Piston Rings — Number and Width	Propeller: Diameter (In.)	Propeller: Pitch	Propeller: Right or Left Hand Rotation	Propeller: Number of Blades	Starting Device	Fuel Tank Capacity (Pts.)	Gear: Ratio	Gear: Tooth Pitch	Gear: Material (S.A.E. No.)	Gearcase Bearing	Magneto Make	Carburetor: Make	Carburetor: Size (In.)	Carburetor: Starting Mixture Obtained by—	Spark Plug — Make and Model	Bearings: Main	Bearings: Connecting Rod	Cooling System	Reverse	Lubrication—Pints Oil to 1 Gal. Gasoline
Atlas Royal 3D10A	Re-2 Port	1	ACS	2½x1½	5.32	S	3.0-4000	29	2-⅜	6½	V	L	2	RR	4	13-22	13.56	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Rot	Yes	1/6
5D10A	Re-2 Port	2	ACS	1½x1½	9.84	AF	5.0-4000	48½	3-⅜	8	7¼	L	2	RR	6½	14-25	12.00	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Ce	Yes†	1/6
12D10A	Re-2 Port	2	ACS	2½x2¼	19.94	AF	12.0-4000	64½	3-⅜	9	10	L	3	RR	12	12-21	8.97	4615	PA	Own	Til	⅝	C	Ch-J6J	PI	PI	Ce	Yes†	1/2
Brookiure 230-51-3D	Re-2 Port	1	ACS	2½x1½	5.32	S	3.0-4000	29	2-⅜	6½	V	L	2	RR	4	13-22	13.56	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Rot	Yes	1/6
230-51-5D	Re-2 Port	2	ACS	1½x1½	9.84	AF	5.0-4000	48½	3-⅜	8	7¼	L	2	RR	6½	14-25	12.00	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Ce	Yes†	1/6
230-51-12D	Re-2 Port	2	ACS	2½x2¼	19.94	AF	12.0-4000	64½	3-⅜	9	10	L	3	RR	12	12-21	8.97	4615	PI	Own	Til	⅝	C	Ch-J6J	PI	PI	Ce	Yes†	1/2
Buccaneer 3D10B	Re-2 Port	1	ACS	2½x1½	5.32	S	3.0-4000	29	2-⅜	6½	V	L	2	RR	4	13-22	13.56	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Rot	Yes	1/6
5D10B	Re-2 Port	2	ACS	1½x1½	9.84	AF	5.0-4000	48½	3-⅜	8	7¼	L	2	RR	6½	14-25	12.00	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Ce	Yes†	1/6
12D10B	Re-2 Port	2	ACS	2½x2¼	19.94	AF	12.0-4000	64½	3-⅜	9	10	L	3	RR	12	12-21	8.97	4615	PI	Own	Til	⅝	C	Ch-J6J	PI	PI	Ce	Yes†	1/2
Champion 1L	RV	1	ACS	2⅛x1⅝	5.84	S	4.2-4300	37	2-⅛	8	5½	R	2	Cord	10	14-24	12.00	NE8640	PI	BS	Til	⅝	C	Ch-7	PI	A	Ce	Yes	3/4
2K	RV	1	ACS	2⅛x1⅝	5.84	S	4.2-4300	39	2-⅛	8	5½	R	2	RR	10	14-24	12.00	NE8640	PA	BS	Til	⅝	C	Ch-7	PI	A	Ce	Yes	3/4
2L-HD	RV	1	ACS	2⅛x1⅝	5.84	S	4.2-4300	40	2-⅛	6½	7½	L	3	RR	10	14-24	12.00	NE8640	PA	BS	Til	⅝	C	Ch-7	PI	A	VP	Yes	3/4
4L	RV-Re	2	ACS	2½x1¾	12.41	AF	8.5-4200	51	2-⅛	7½	9½	L	3	RR	12	14-24	12.00	NE8640	PA	Phe	Til	⅝	C	Ch-7	PI	A	VP	Yes	3/4
4L-S-IX	RV-Re	2	ACS	2½x1¾	12.41	AF	8.5-4200	51	2-⅛	7	9	L	3	RR	12	14-19	12.00	NE8640	PA	Phe	Til	⅝	C	Ch-H16A	PI	A	VP	Yes	2
4L-HD	RV-Re	2	ACS	2½x1¾	12.41	AF	8.5-4200	52	2-⅛	7½	9½	L	3	RR	12	14-24	12.00	NE8640	PA	Phe	Til	⅝	C	Ch-7	PI	A	VP	Yes	3/4
Chris Craft Challenger-J	Re-2 Port	2	MI	2x1½	9.42	AF	8.5-4000°	46	2-⅛	8¼	8	L	2	RR	10½	14-25	12.00	4615	PI	BS	Til	¾	C	Ch-J8J	PI	PI	Rol	Yes	1/6
Commander-K	Re-2 Port	2	MI	2½x2½	19.94	AF	10.0-4000°	72	2-⅛	8¼	9	L	2	RR	16	13-17	12.00	4615	A	BS	Til	¾	C	Ch-J8J	A	A	Fvr	No	3/4
Corsair 5027	Re-2 Port	2	ACS	1½x1½	7.48	AF	5.0-4200	47	2-⅛	7½	7	R	2	RR	8	13-21	10.75	8640	PA	Phe	Til	⅝	C	Ch-H10J	PA	PA	Fvr	Yes†	1/2
5023	Re-2 Port	2	ACS	2x1⅝	11.00	AF	7.5-4200	54	2-⅛	8	7½	R	2	RR	8	13-21	10.75	8640	PA	Phe	Til	⅝	C	Ch-H10J	PI	PA	Fvr	Yes†	1/2
5029	Re-2 Port	2	ACS	2½x2	14.19	AF	10.0-4200	61	2-⅛	8½	10	R	2	RR	8	13-21	10.75	8640	PA	Wico	Til	⅝	C	Ch-HT10J	PA	PA	Fvr	Yes†	1/2
Elgin 5820	Re-2 Port	1	ACS	1¾x1⅞	3.76	S	2.0-4000	29	3-⅜	6½	4	L	2	Cord	5	14-21	12.00	NE8640	PI	Wico	Til	½	C	AS-A4120	PI	PI	Air	Yes	1/6
5830	Re-2 Port	1	ACS	1½x1⅝	2.43	S	1.2-4000	19½	2-⅜	6½	5	L	2	Cord	3½	12-21	14.00	X1315	PI	Wico	Til	½	C	AS-A4120	PA	PI	Air	No	3/4
5840	Re-2 Port	1	ACS	2x1⅞	4.90	S	2.5-4000	29½	2-⅜	7½	4½	L	2	Cord	7½	14-21	12.00	8640	PI	Wico	Til	½	C	AS-A4120	PA	PI	VP	No	1/2
5856	Re-2 Port	2	ACS	2x1⅝	10.60	AF	5.0-4000	47¾	3-⅜	7½	6¾	L	2	RR	8	14-21	12.00	NE8640	PI	Wico	Til	½	C	AS-A4120	PA	PI	VP	Yes†	1/2
5875	Re-2 Port	2	ACS	2x1⅝	10.60	AF	7.5-4000	48¼	3-⅜	7½	8	L	2	RR	11	14-21	12.00	NE8640	PI	Wico	Til	½	C	AS-A4120	PA	A	VP	Yes†	1/2
5882	Re-2 Port	2	ACS	2⅛x2⅛	24.00	AF	16.0-4000°	92	3-⅜	9½	9½	R	3	RR	46*	14-21	9.00	4340	A	FM	Til	½	C	AS-A4120	A	PA	VP	Yes†	3/4
5894	Re-2 Port	2	ACS	2⅛x2⅛	24.00	AF	16.0-4000	95	3-⅜	9½	9½	R	3	RR	46*	14-21	9.00	4340	A	FM	Til	½	C	AS-A4120	A	PA	VP	Yes†	3/4
Evinrude Lightwin 4445		2		1⅞x1⅝	5.27	AF	3.0-4000	29	2-⅜	6½	5¾		3			12-20					Own			Ch-J6J					1/6
Fleetwin 4443		2		2½x1¾	12.40		7.5-4000	49	3-⅜	8	8		2			13-20					Til			Ch-J6J					1/2
Fastwin 4441		2		2⅝x2½	19.94		14.0-4000	66	3-⅜	9	10		3			12-21					Til			Qh-J6J					1/2
Big Twin 2001		2		2⅞x2⅝	35.70		26.0-4000	97	3-⅜	10⅝	12½		3			12-21					Own			Ch-J6J					1/2
Firestone 10-A-71	Re-2 Port	1	ACS	2½x1¾	5.21	S	3.0-4000	39	2-⅛	7½	6	R	2	RR	8	13-21	12.56	8640	PA	Phe	Til	¾	C	Ch-H10J	PI	PA	Rot	No	1/6
10-A-73	Re-2 Port	2	ACS	1½x1½	7.48	AF	5.0-4200	47	2-⅛	7½	7	R	2	RR	8	13-21	10.75	8640	PA	Phe	Til	¾	C	Ch-H10J	PA	PA	Fvr	Yes†	1/2
10-A-74	Re-2 Port	2	ACS	2x1⅝	11.00	AF	7.5-4200	54	2-⅛	8	7½	R	2	RR	8	13-21	10.75	8640	PA	Phe	Til	¾	C	Ch-H10J	PI	PA	Fvr	Yes†	1/2
10-A-75	Re-2 Port	2	ACS	2½x2	14.19	AF	10.0-4200	61	2-⅛	8½	10	R	2	RR	8	13-21	10.75	8640	PA	Wico	Til	¾	C	Ch-HT10J	PA	PA	Fvr	Yes†	1/2
Flambeau 174520	3 Port	1	CI	1⅛x1⅛	4.02	S	2.5-4000	26	3-⅜	7	6	L	2	Cord	6	13-24	12.00	1315	PI	Eis	Own		FI	Ch-J7J	PI	PI	Rot	No	3/4
174050	3 Port	2	CI	1⅛x1⅞	9.24	AF	5.0-4000	32	3-⅜	8	8½	L	2	Cord	6	13-24	12.00	1315	PI	Eis	Own		FI	Ch-J7J	PI	PI	Rot	No	3/4
Hiawatha 250MI-25-7973A	Re-2 Port	2	ACS	1½x1½	8.84	AF	5.0-4000	46½	3-⅜	8	7¼	L	2	RR	6½	14-25	12.00	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	Ce	Yes†	1/6
250MI-25-7961A	Re-2 Port	2	ACS	2½x2¼	19.94	AF	12.0-4000	64½	3-⅜	9	10	L	3	RR	12	12-21	8.97	4615	PI	Own	Til	⅝	C	Ch-J6J	PI	PI	Ce	Yes†	1/2
Johnson Sea Horse 3	Re-2 Port	2	ACS	1⅞x1⅝	5.27	AF	3.0-4000	29	2-⅜	6½	5¾	R	3	RR	4⅞	12-20	11.20	4615	PI	Own	Own	½	C	Ch-J6J	PI	PI	VV	Yes	1/6
Sea Horse 5	RV-3 Port	2	ACS	1½x1½	8.84	AF	5.0-4000	44¾	3-⅜	8	7¼	R	2	RR	7	14-25	12.00	4615	PI	Own	Own	½	Pr	Ch-J6J	PI	PI	VV	Yes†	1/6
Sea Horse 10	Re-2 Port	2	ACS	2½x1⅞	16.60	AF	10.0-4000	58+	3-⅜	9	8	R	3	RR	48*	12-21	8.97	4615	PA	Own	Own	½	Pr	Ch-J6J	A	A	VV	Yes†	1/2
Sea Horse 25	Re-2 Port	2	ACS	2⅞x2¼	35.70	AF	26.0-4000	96+	3-⅜	10⅝	12½	R	3	RR	48*	12-21	7.50	4615	A	Own	Own	1	C	Ch-J6J	A	A	VV	Yes†	1/2
Lauson S-351	Pop-2 Port	1	CI	2½x1⅞	6.65	S	3.0-3600*	44	3-	7½	6		2	RR	5	12-22			PI	Wico	Til		C	Ch-J8	A	PI	Air		N
T-651	Pop-2 Port	2	CI	2½x1⅞	13.30	AF	6.0-3600*	57	3-	8	6½		2	RR	10	13-21			PI	Eis	Til		C	Ch-J8	PI	PI	Air	No	N
T-651R	Pop-2 Port	2	CI	2½x1⅞	13.30	AF	6.0-3600*	65	3-	8	6½		2	RR	10	13-21			PI	Eis	Til		C	Ch-J8	PI	PI	Air	Yes	N

Martin	20	Pop	1	CI	$1\frac{3}{8}$x$1\frac{1}{2}$	2.88	S	2.3-4300	31	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	R	2	RR	7	13-20	(a)	4150	PI	Wico	Til	$\frac{1}{2}$	FI	Ch-J6J	PI	PI	Rel	Yes	$\frac{1}{2}$
	40	Pop	2	CI	$1\frac{3}{8}$x$1\frac{1}{2}$	5.76	AF	4.5-4300	36	$3\frac{1}{2}$	$7\frac{1}{2}$	6	R	2	RR	7	13-20	(a)	4150	PI	Wico	Til	$\frac{1}{2}$	FI	AL-AN7X	PI	PI	Rel	Yes	$\frac{1}{2}$
	Syncro Twist 45	Pop	2	CI	$1\frac{3}{8}$x$1\frac{1}{2}$	5.76	AF	4.5-4300	36	$3\frac{1}{2}$	$7\frac{1}{2}$	6	R	2	RR	7	13-20	(a)	4150	PI	Wico	Car	$\frac{1}{2}$	C	Ch-J8J	PI	PI	Rel	Yes	$\frac{1}{2}$
	60	Pop	2	CI	$2x1\frac{3}{4}$	11.00	AF	7.2-4000	44	$3\frac{1}{2}$	8	8	R	2	RR	8	13-20	(a)	4150	PI	Wico	Til	$\frac{5}{8}$	FI	AL-AN7X	PI	PI	Rel	Yes	$\frac{5}{8}$
	Syncro Twist 75	Pop	2	CI	$2x1\frac{3}{4}$	11.00	AF	7.5-4300	44	$3\frac{1}{2}$	8	8	R	2	RR	8	13-20	(a)	4150	PI	Wico	Car	$\frac{5}{8}$	C	Ch-J8J	PI	PI	Rel	Yes	$\frac{5}{8}$
	Twist Shift 75	Pop	2	CI	$2x1\frac{3}{4}$	11.00	AF	7.5-4300	50	$3\frac{1}{2}$	8	8	R	2	RR	8	13-20	(a)	4150	PA	Wico	Car	$\frac{5}{8}$	C	Ch-J8J	A	A	Rot	Yes	$\frac{5}{8}$
	100	Pop	2	CI	$2\frac{1}{4}$x$1\frac{3}{4}$	13.15	AF	10.0-4800	57	$3\frac{1}{2}$	8	$9\frac{1}{4}$	R	2	RR	11	13-19	(a)	4150	PA	Wico	Car	$\frac{5}{8}$	C	Ch-J6J	A	A	Rot	Yes	$\frac{1}{2}$
	Twist Shift 100	Pop	2	CI	$2\frac{1}{4}$x$1\frac{3}{4}$	13.15	AF	10.0-4300	61	$3\frac{1}{2}$	8	$9\frac{1}{4}$	R	2	RR	11	13-20	(a)	4150	PA	Wico	Car	$\frac{5}{8}$	C	Ch-J6J	A	A	Rot	Yes	$\frac{1}{2}$
Scott-Atwater	1-12	Re-2 Port	1	ACS	$2\frac{1}{8}$x$1\frac{3}{8}$	6.21	S	3.6-4600	39	$2\frac{1}{2}$	$7\frac{1}{2}$	6	R	2	RR	8	13-21	12.56	8640	PA	Wico	Til	$\frac{3}{4}$	C	Ch-H10J	PI	PA	Rot	No	$\frac{1}{2}$
	1-16	Re-2 Port	1	ACS	$1\frac{1}{2}$x$1\frac{1}{2}$	7.48	AF	5.0-4200	49	$2\frac{1}{2}$	$7\frac{1}{2}$	7	R	2	RR	8	13-21	10.75	8640	PA	Wico	Til	$\frac{3}{4}$	C	Ch-H10J	PA	PA	Fvr	Yes†	$\frac{1}{2}$
	1-20	Re-2 Port	2	ACS	$2x1\frac{3}{4}$	11.00	AF	7.5-4200	58	$2\frac{1}{2}$	8	$7\frac{1}{2}$	R	2	RR	8	13-21	10.75	8640	PA	Phe	Til	$\frac{3}{4}$	C	Ch-H10J	PI	PA	Fvr	Yes†	$\frac{1}{2}$
	1-25	Re-2 Port	2	ACS	$2\frac{1}{4}$x2	14.19	AF	10.0-4200	64	$2\frac{1}{2}$	$8\frac{1}{8}$	10	R	2	RR	8	13-21	10.75	8640	PA	Wico	Til	$\frac{3}{4}$	C	Ch-HT10J	PA	PA	Fvr	Yes†	$\frac{1}{2}$
	1-30	Re-2 Port	2	ACS	$2\frac{1}{2}$x2$\frac{1}{4}$	19.95	AF	16.0-4200	86	$3\frac{1}{2}$	9	$9\frac{1}{2}$	R	3	RR	48▲	17-23	10.00	8640	A	Wico	Til	1	C	Ch-5MJ	A	A	Fvr	Yes†	$\frac{1}{2}$
Sea Bee	025-3567	Re-2 Port	1	ACS	$2\frac{1}{8}$x$1\frac{1}{2}$	5.32	S	3.0-4000	29	$2\frac{1}{2}$	$6\frac{1}{2}$	V	L	2	RR	4	13-22	13.56	4615	PI	Own	Own	$\frac{1}{2}$	Pr	Ch-J6J	PI	PI	Rot	Yes	$\frac{1}{2}$
	025-3569	Re-2 Port	2	ACS	$1\frac{1}{2}$x$1\frac{1}{2}$	8.84	AF	5.0-4000	46$\frac{1}{2}$	$3\frac{1}{2}$	8	$7\frac{1}{4}$	L	2	RR	$6\frac{1}{2}$	14-25	12.00	4615	PI	Own	Own	$\frac{1}{2}$	Pr	Ch-J6J	PI	PI	Ce	Yes†	$\frac{1}{2}$
	025-3572	Re-2 Port	2	ACS	$2\frac{5}{8}$x$2\frac{1}{4}$	19.94	AF	12.0-4000	64$\frac{1}{2}$	$3\frac{1}{2}$	9	10	L	3	RR	12	12-21	8.97	4615	PI	Own	Til	$\frac{5}{8}$	C	Ch-J6J	PI	PI	Ce	Yes†	$\frac{1}{2}$
Sea Flyer	64-170	Re-2 Port	1	ACS	$2\frac{1}{8}$x$1\frac{1}{2}$	5.32	S	3.0-4000	29	$2\frac{1}{2}$	$6\frac{1}{2}$	V	L	2	RR	4	13-22	13.56	4615	PI	Own	Own	$\frac{1}{2}$	Pr	Ch-J6J	PI	PI	Rot	Yes	$\frac{1}{2}$
	64-180	Re-2 Port	2	ACS	$1\frac{1}{2}$x$1\frac{1}{2}$	8.84	AF	5.0-4000	46$\frac{1}{2}$	$3\frac{1}{2}$	8	$7\frac{1}{4}$	L	2	RR	$6\frac{1}{2}$	14-25	12.00	4615	PI	Own	Own	$\frac{1}{2}$	Pr	Ch-J6J	PI	PI	Ce	Yes†	$\frac{1}{2}$
	64-190	Re-2 Port	2	ACS	$2\frac{5}{8}$x$2\frac{1}{4}$	19.94	AF	12.0-4000	64$\frac{1}{2}$	$3\frac{1}{2}$	9	10	L	3	RR	12	12-21	8.97	4615	PI	Own	Til	$\frac{5}{8}$	C	Ch-J6J	PI	PI	Ce	Yes†	$\frac{1}{2}$
Sea King	15GG-8004	Re-2 Port	1	ACS	$2\frac{1}{8}$x$1\frac{1}{2}$	5.32	S	3.0-4000	29	$2\frac{1}{2}$	$6\frac{1}{2}$	V	L	2	RR	4	13-22	13.56	4615	PI	Own	Own	$\frac{1}{2}$	Pr	Ch-J6J	PI	PI	Rot	Yes	$\frac{1}{2}$
	25GG-8015	Re-2 Port	2	ACS	$1\frac{1}{2}$x$1\frac{1}{2}$	8.84	AF	5.0-4000	46$\frac{1}{2}$	$3\frac{1}{2}$	8	$7\frac{1}{4}$	L	2	RR	$6\frac{1}{2}$	14-25	12.00	4615	PI	Own	Own	$\frac{1}{2}$	Pr	Ch-J6J	PI	PI	Ce	Yes†	$\frac{1}{2}$
	25GG-8018	Re-2 Port	2	ACS	$2\frac{5}{8}$x$2\frac{1}{4}$	19.94	AF	12.0-4000	64$\frac{1}{2}$	$3\frac{1}{2}$	9	10	L	3	RR	12	12-21	8.97	4615	PI	Own	Til	$\frac{5}{8}$	C	Ch-J6J	PI	PI	Ce	Yes†	$\frac{1}{2}$

ABBREVIATIONS

†—Includes neutral.
•—Advertised horsepower.
▲—Separate gas tank.
♦—Less gas tank, which is separate from motor.

(a)—0.025 circular pitch.
A—Antifriction.
ACS—Aluminum with cast iron sleeves.
AF—Alternate firing.
AL—Electric Auto-Lite Co.
AS—All-State.
BS—Bendix-Scintilla Magneto Div
C—Choke.
Car—Carter Carburetor Co.
Ce—Centrifugal.
Ch—Champion Spark Plug Co.
CI—Cast iron.
Eis—Eiseman (Jack & Heintz Precision Ind.).
FI—Flooding.
FM—Fairbanks-Morse & Co.
Fvr—Flexible vane rotor.
L—Left. **MI**—Meehanite iron.
N—None.
PA—Plain and antifriction.
Phe—R. E. Phelon Co.
PI—Plain.
Pop—Poppet valve.
Pr—Primer.
Re—Reed valve.
Rel—Rollator rubber.
Rot—Rotary pump.
RR—Rewinding rope.
RV—Rotary valve.
S—Single.
Til—Tillotson Mfg. Co.
V—Various.
VP—Vane pumps.
VV—Vari-Vol.
Wico—Wico Electric Co.

For Directory of the Manufacturers listed above, see page 338

Motor Boat Registrations by Customs Port

Numbered and Undocumented Vessels

Cumulative Total as of September 30, 1951, U. S. Coast Guard.

Coast Guard District	Customs Port		
1 (Boston)	(4)	Boston	16,765
	(1)	Portland, Maine	11,612
	(2)	St. Albans	2,924
	(5)	Providence	4,690
Total			35,991
2 (St. Louis)	(45)	St. Louis	17,306
	(12)	Pittsburgh	2,507
	(34)	Pembina	91
	(35)	Minneapolis	6,530
	(40)	Indianapolis	4,369
	(42)	Louisville	4,000
	(43)	Memphis (part)	8,115
	(46)	Omaha (part)	505
	(47)	Denver	6
Total			43,449
3 (New York)	(10)	New York	49,488
	(6)	Bridgeport	9,301
	(11)	Philadelphia	21,264
Total			80,053
5 (Norfolk)	(14)	Norfolk	16,606
	(13)	Baltimore	23,908
	(15)	Wilmington, N. C.	8,757
Total			49,171
7 (Miami)	(18)	Tampa (part)	23,339
	(16)	Charleston	1,973
	(17)	Savannah	3,395
	(49)	San Juan	470
	(51)	St. Thomas	95
Total			29,272
8 (New Orleans)	(20)	New Orleans	20,367
	(18)	Tampa (part)	801
	(19)	Mobile	8,382
	(21)	Port Arthur	4,061
	(22)	Galveston	10,870
	(23)	Laredo	2,140
	(24)	El Paso	5
	(43)	Memphis (part)	76
Total			46,702
9 (Cleveland)	(41)	Cleveland	14,450
	(7)	Ogdensburg	6,514
	(8)	Rochester	8,869
	(9)	Buffalo	8,327
	(36)	Duluth	4,238
	(37)	Milwaukee	12,610
	(38)	Detroit	29,538
	(39)	Chicago	9,620
Total			93,166
11 (Long Beach)	(27)	Los Angeles	9,285
	(25)	San Diego	1,772
	(26)	Nogales	110
Total			11,167
12 (San Francisco)	(28)	San Francisco	20,847
Total			20,847
13 (Seattle)	(30)	Seattle	33,383
	(29)	Portland, Oregon	9,030
	(33)	Great Falls	1,057
Total			43,470
14 (Honolulu)	(32)	Honolulu	3,540
Total			3,540
17 (Juneau)	(31)	Juneau	7,150
Total			7,150
Grand Total			463,978

6-cylinder—heavy duty

WAUKESHA ENGINES

DIESEL • PROPANE • GASOLINE

265 cu. in. to 1197 cu. in.

Now, as always, Waukesha Engines are built around available fuels—to give the greatest utilization and efficiency possible. Propane—for 15 years—has been the standard fuel on thousands of Waukesha Engines in railway service. In its 45 years of building heavy duty internal combustion engines, Waukesha pioneered in fuel research; made standardized fuel testing equipment from the first. High compression and high controlled turbulence adapt Waukesha Engines to burn all modern refined petroleum fuels. Consult Waukesha on all your power needs.

Send for descriptive bulletins on any or all of these engines.

Dependable Power for

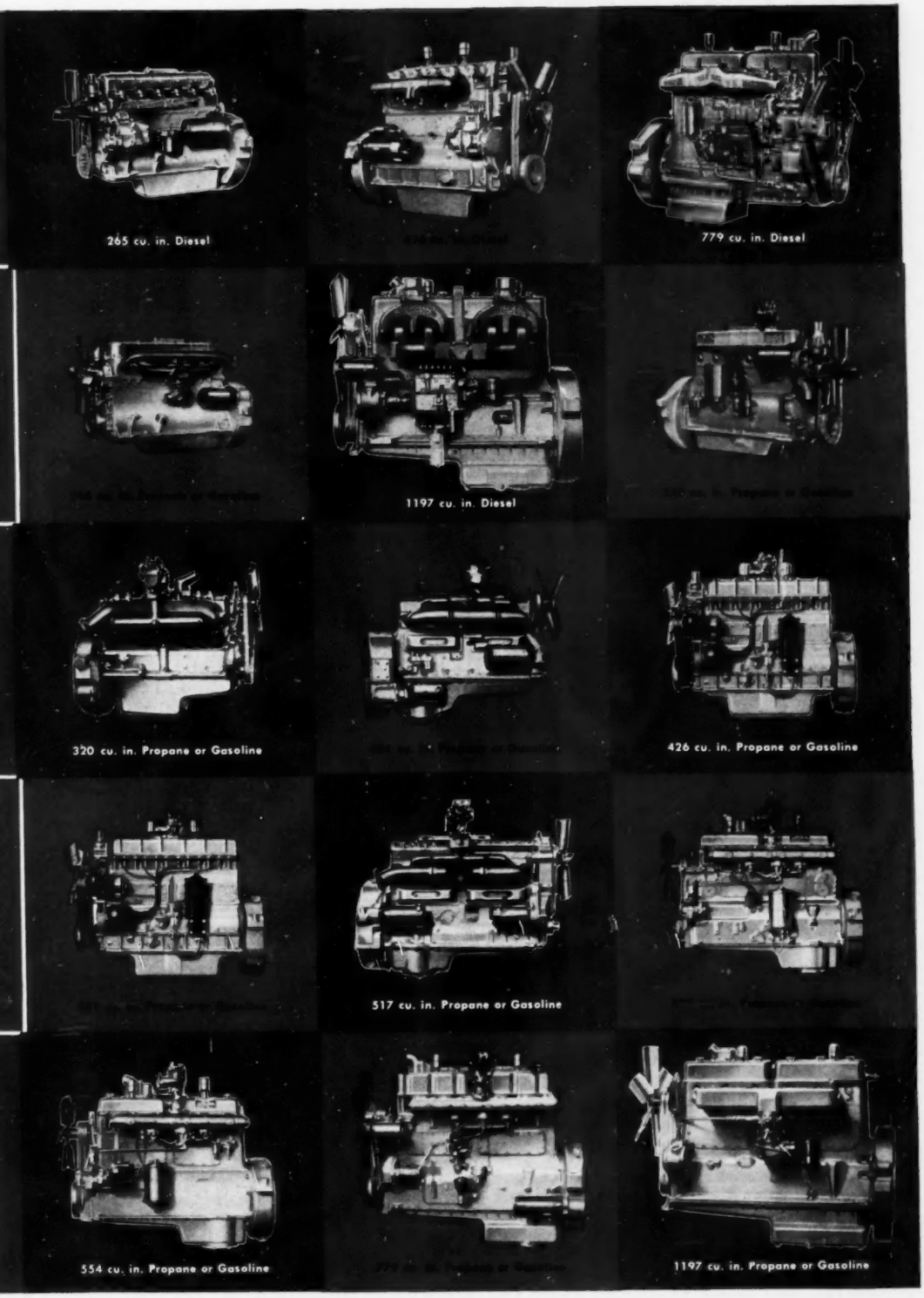
- Trucks
- Buses
- Tractors
- Fire Trucks
- Rescue Squad Cars
- Airport Crash Trucks
- Passenger-Delivery Cars
- Off-Highway Tractors
- Pumps
- Electrical Machinery
- Industrial Equipment
- Mining
- Oil Fields
- Farm Power
- Public Utilities
- Earth Moving Equipment

—and many other heavy duty requirements

Model	Bore and Stroke, In.	Displ. Cu. In.	Max. Hp.	Rpm.
DIESEL ENGINES				
190-DLCA	3¾ x 4	265	85	2600
195-DLCA	4 x 4	302	98	2600
135-DKA	4½ x 5	426	135	2800
148-DK	5¼ x 6	779	198	2000
6-WAKD	6¼ x 6½	1197	240	1800
PROPANE or GASOLINE ENGINES				
			Gasoline Ratings	
190-GL	3¾ x 4	265	66	2400
195-GKA	4⅛ x 4	320	122	3000
6-BZ	4 x 4¼	320	104	3000
6-MZA	4⅛ x 4¾	404	128	2800
135-GKA	4¼ x 5	426	141	2800
135-GZA	4⅜ x 5	451	150	2800
6-SRKR	4⅝ x 5⅜	517	125	2250
140-GKB	4½ x 5½	525	172	2600
140-GZB	4⅝ x 5½	554	188	2600
145-GKB	5¼ x 6	779	240	2400
6-WAK	6¼ x 6½	1197	235	1800

Propane Ratings on Request

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS. • NEW YORK, TULSA, LOS ANGELES


265 cu. in. Diesel
779 cu. in. Diesel
1197 cu. in. Diesel
320 cu. in. Propane or Gasoline
426 cu. in. Propane or Gasoline
517 cu. in. Propane or Gasoline
554 cu. in. Propane or Gasoline
1197 cu. in. Propane or Gasoline

SCHWITZER-CUMMINS COMPANY

Specialists in COOLING FANS

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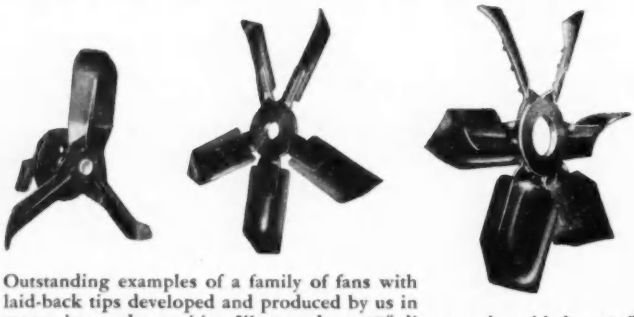
For over a third of a century we have been suppliers of cooling fans to the automotive industry; in many cases the chief supplier to whole divisions within the industry. For instance, today practically all leading engines in the fast growing Diesel field carry Schwitzer-Cummins fans along with other Schwitzer-Cummins products.

Pictured at the left is a 40″ diameter heavy duty fan used on several large capacity oil engines and for stationary applications as well.

A thermostatically controlled fan, simplified and with many advantages for applications where a rate of cooling variable with the work is desirable, is a recent field-proven development of our own engineering.



Outstanding examples of a family of fans with laid-back tips developed and produced by us in many sizes and capacities. Illustrated are 18″ diameter three blades—21″ diameter five blades—26″ diameter six blades.

We will apply the experience and skill of a lifetime of building and engineering cooling fans to your problem. We'll appreciate your inquiries.

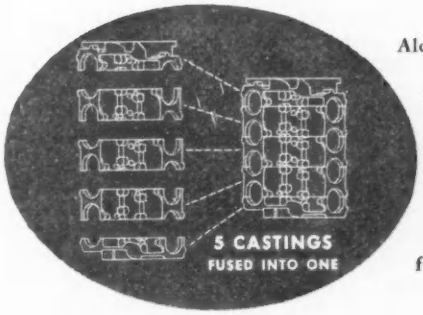
OTHER PRODUCTS

- OIL PUMPS
- WATER PUMPS
- SUPERCHARGERS
- VIBRATION DAMPERS
- AUTOMATIC SHAFT SEALS

SCHWITZER-CUMMINS COMPANY
1125 MASSACHUSETTS AVENUE
INDIANAPOLIS 7, INDIANA, U.S.A.

brazes a trail to low-cost castings

Higher compressions get you more power. But they boost engine heat, too. That's why designers are taking a fresh look at aluminum castings for cylinder heads, manifolds, cylinder blocks. Because aluminum conducts heat *fast*!



Too expensive, you say? Maybe, as complex cored castings. Alcoa development engineers tackled this cost problem from a new angle. Why not make a cylinder block in five sections—each a relatively simple permanent-mold casting—then braze 'em into one piece with a single furnace pass? They tried it. It worked. It put a low, competitive price tag on the aluminum cylinder block, and cylinder heads, too.

Could this "sandwich" technique cut the cost of aluminum parts for you? Military needs limit the metal we can supply. But perhaps we can help you *imagineer with aluminum* for future improvements. Call your nearby Alcoa sales office. Or write ALUMINUM COMPANY OF AMERICA, 1841C Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA

First in Aluminum

Balanced Engineering

. . . for Most Power at Speeds Consistent with Low Fuel and Upkeep Cost

Continental Motors' 50 years of internal combustion engineering has produced a matchless balance of the characteristics comprising the thing called *Performance*. Advanced combustion chamber design, in combination with the Continental system of manifolding, valving and carburetion, results in a highly favorable ratio between *Engine Speed* and *Power*. Delivery of useful output at relatively low r.p.m. stretches each gallon to the utmost, cuts wear on moving parts, reduces ton-mile costs. The increasing importance of these factors in commercial vehicle operation makes it doubly wise, these days, to standardize on units with Continental Red Seal power.

CONTINENTAL MOTORS · Powerful as the Nation · AMERICA'S STANDARD ·

1902 OUR 50th YEAR 1952

FACTORY-AUTHORIZED SERVICE AND GENUINE CONTINENTAL RED SEAL PARTS AVAILABLE FROM COAST TO COAST

Continental Motors Corporation
MUSKEGON, MICHIGAN

ANOTHER *new* DEVELOPMENT by ZOLLNER

Double Bonded

METALLURGICALLY Al-fin Bond

MECHANICALLY Zollner Lock

Now, another great advancement in piston design is made available to engine builders by Zollner engineers. It's the new BONDOLOC Piston for heavy duty engines where excessive top ring groove wear has been a problem. A "Ni-resist" iron groove section is *permanently* incorporated in this piston by *both* Al-fin metallurgical and Zollner mechanical bond — *double bonded and locked* to positively prevent separation failure in any service. The exclusive Zollner mechanical lock with reverse angles on every surface joining "Ni-resist" iron and aluminum provides a multiple dovetail bond which is infinitely wedge-locked. Zollner engineers invite immediate discussion of the many advantages of BONDOLOC Pistons by application to your engine.

NEW OUTSTANDING ADVANTAGES OF ZOLLNER DESIGNED MECHANICAL LOCK

1. Reverse angle designed top ring section with tapered flutes dovetail locks in all directions.
2. Positive mechanical interlock prevents any movement.
3. Reduces weight 25% to 30% with lower inertia stresses.
4. Increases surface areas carrying inertia load.
5. Provides visual inspection of bond as seen in ring groove.

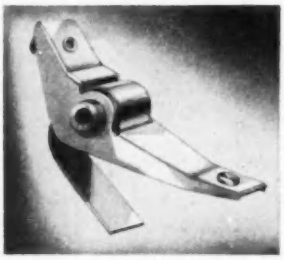
Licensed under Patents 2,396,730; 2,455,457; 2,550,879. *T.M

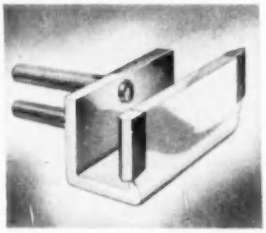
ZOLLNER

The Original Equipment **PISTONS**

ZOLLNER MACHINE WORKS • FORT WAYNE, IND.

Don't let contact assembly problems "sidetrack" your engineers... your production facilities!





No manufacturer today can afford to waste either man hours or machine time. He must plan his operations so that both work full time at the jobs they can do best—their regular jobs.

You can avoid diverting men and machines from your own specialty by turning to Mallory for improved design and the production of contact assemblies—a job for which Mallory has the necessary specialized skills, materials and tools.

For 25 years, Mallory has been designing and producing contacts,. . . has built an unequalled store of experience . . . developed special alloys, special techniques and special tools to turn out all kinds of contact assemblies.

These assemblies pay off for Mallory customers in the form of outstanding performance on the job—often at reduced costs. In addition, when you put Mallory to work for you, you completely eliminate the problems of scheduling, inventory control, other overhead costs and divided responsibility involved in handling your own contact unit production.

Call or write Mallory today. You'll find, as many other manufacturers have, that it really pays in many ways to count on Mallory for all your contact assembly needs.

●● *Shown here are examples of Mallory contact assembly design and production. Each represents a practical, economical answer to specific problems of conductivity . . . necessary physical strength . . . secure bonding of contact to backing material. You can count on the same kind of satisfactory answer to all your contact assembly problems when you put Mallory's specialized knowledge, techniques and materials to work for you.*

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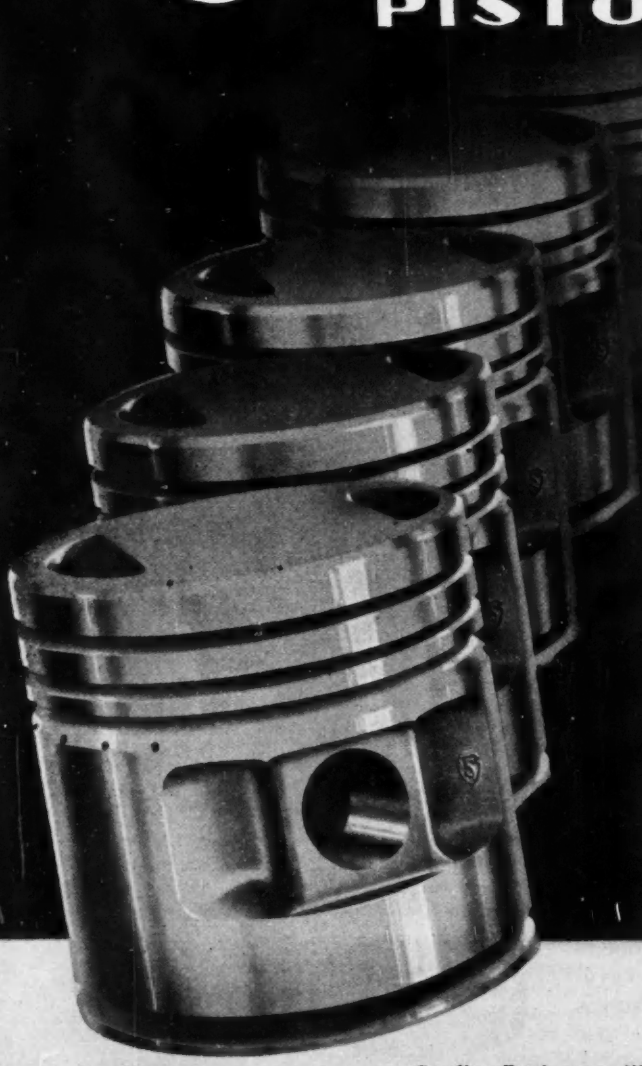
STERLING
PISTONS



Contributing to Better Engine Performance for Over 30 years

Sterling Engineers will work with you as they have with other leading manufacturers in developing pistons to meet your exacting requirements. Write or phone.

Unique production processes build Extra quality into Eaton Valve Seat Inserts

Years of production experience and close engineering cooperation with leading engine manufacturers, combined with modern high-volume facilities, enable Eaton to furnish high-quality valve seat inserts to meet the specific requirements of the automobile, truck, and tractor industries. The range covers all types of inserts from low-priced, volume production passenger car inserts up to large-size, puddled-face inserts of suitable materials for large heavy-duty installations. A unique method of puddling special facing materials on insert seats enables Eaton to furnish inserts with superior corrosion and wear-resistant qualities at minimum cost.

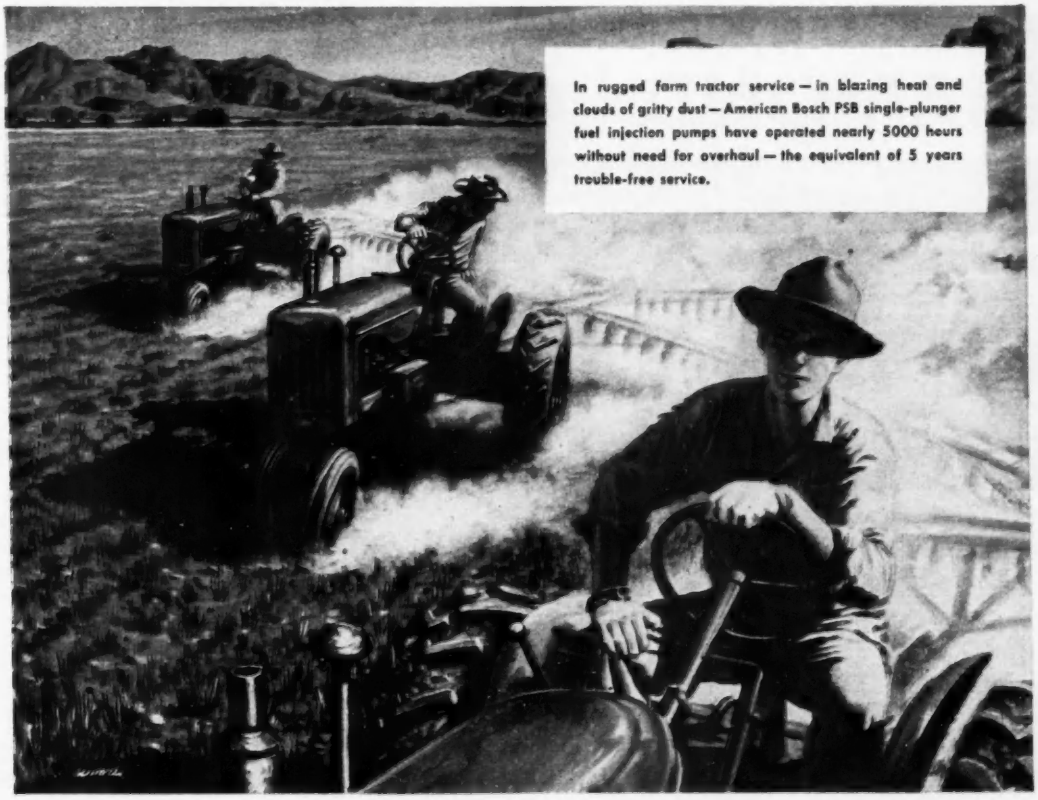
You can utilize Eaton's long experience in this field by giving our engineers an opportunity to work with yours in the early stages of design.

EATON MANUFACTURING COMPANY

CLEVELAND, OHIO

SAGINAW DIVISION: 9771 FRENCH ROAD • DETROIT 13, MICHIGAN

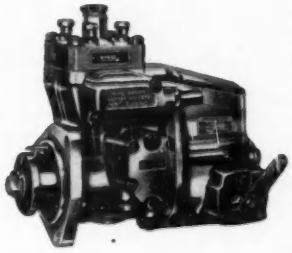
PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers



In rugged farm tractor service — in blazing heat and clouds of gritty dust — American Bosch PSB single-plunger fuel injection pumps have operated nearly 5000 hours without need for overhaul — the equivalent of 5 years trouble-free service.

PROVED ON THE TOUGHEST JOBS . . .

AMERICAN BOSCH *PSB fuel injection pump*



Tried and proved in the severest service, the American Bosch PSB single-plunger multi-cylinder fuel injection pump is expanding the use of economical Diesel power in fields where automotive-type Diesel engines are particularly adaptable.

Considerably smaller in size and weight than comparable multi-plunger types, the PSB pump uses only a single plunger to serve as many as six engine cylinders — can be more easily serviced in the field — reduces substantially the cost of injection equipment for small Diesel engines — has rolled up remarkable records of performance in severe service.

The engineering and production techniques that made possible the successful development of the single-plunger injection pump result from over 40 years experience of American Bosch in the design and manufacture of precision products — coupled with a strong research program that leads constantly to new and better contributions to the automotive, aviation and Diesel industries. American Bosch Corporation, Springfield 7, Mass.

AMERICAN BOSCH

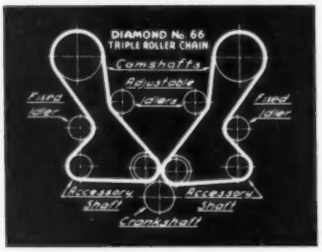
American Bosch

MAGNETOS • GENERATORS • VOLTAGE REGULATORS • IGNITION COILS • ELECTRIC WINDSHIELD WIPERS • DIESEL FUEL INJECTION EQUIPMENT

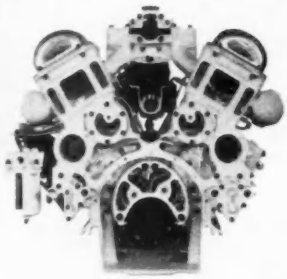
AMERICAN BOSCH CORPORATION • SPRINGFIELD 7, MASS.

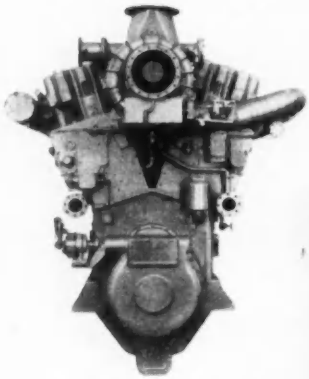
FOR BETTER PERFORMANCE—AND ECONOMY
DIAMOND ROLLER CHAINS

TIMING AND AUXILIARY ENGINE DRIVES

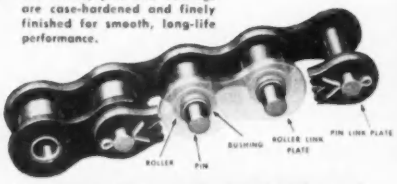


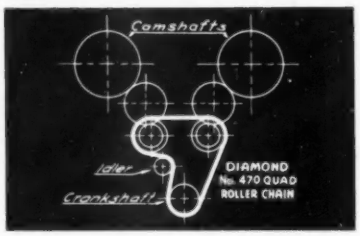
Hall-Scott V-12 Gasoline or Gas Engine. Two Diamond Roller Chain Drives, one for each bank of 6 cylinders as shown by the heavy lines in the diagram





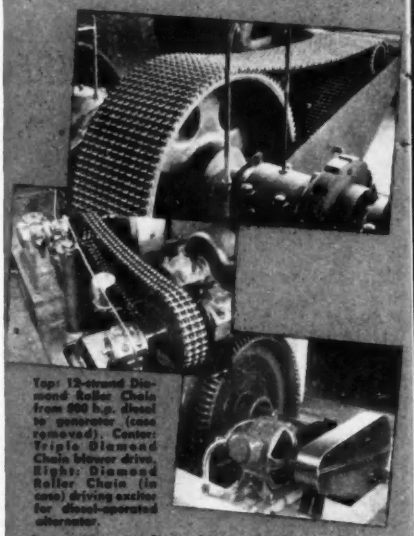
The rollers, pins and bushings are case-hardened and finely finished for smooth, long-life performance.





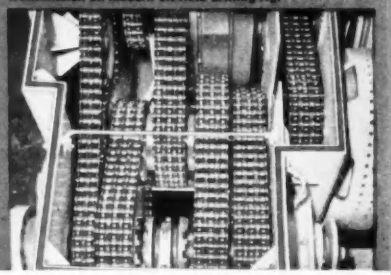
On the Cooper-Bessemer L.S.V. Engine, Diamond No. 470 quadruple Chain is installed from the timing drive camshaft to intermediate shaft and Diamond No. 148 for the auxiliary drive.

POWER TAKE-OFF and COMPOUND DRIVES



Top: 12-strand Diamond Roller Chain from 800 h.p. diesel to generator (cover removed). Center: Triple Diamond Chain blower drive. Right: Diamond Roller Chain (in cover) driving exciter for diesel-operated alternator.

Below: Diamond Chain Compound Drive Transmission on modern oil field drilling rig.



• For over a quarter century the use of Diamond Roller Chains has included many applications on all types of engines: — gas, gasoline, diesel and dual-fuel up to 5000 h.p. and at speeds as high as 10,000 r.p.m. in stationary, marine and land transportation service. Wide usage has demonstrated their unmatched long-life reliability, high maintained efficiency and smoothness of operation. Efficiency remains practically the same throughout long service. The finish of working surfaces improves with scarcely measurable wear.

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1. Adaptability to wide range of shaft centers, speeds, and ratios.
2. Drive from either face.
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5. Quiet when installed — Remain quiet.
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Diamond Engineers offer complete design and application service.

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Years Ahead!

— in Speed! Pulling Power! Economy! Servicing Convenience!

H540/V8

Le Roi H540 powers Walter Snow Fighter

Gives it extra power and quicker acceleration. Fast acceleration is inherent in the H540 V-8 design — with its aluminum pistons, relatively light flywheel, and minimum-radius rotating parts.

A 200-HP power plant only 45" long! Low weight-to-horsepower ratio only 6 lbs. per HP! That's the Le Roi H540 — a high-compression, valve-in-head V-8 engine.

The H540's advanced-design features include: Box-like crankcase that gives extra rigidity. Short, fully counter-weighted crankshaft that reduces vibration. Carburetion that provides fuel economy at road loads, assures rich mixtures for maximum power and acceleration. Wet cylinder sleeves that can be replaced inexpensively. And many other features that help you get outstanding engine performance.

And if you're interested in LPG, the H540's just the engine for you — thanks to its extremely stiff crankcase and adequate cooling.

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☐ Automatic joint snugness ☐ Smoother operation ☐ Longer life

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Why segmental bushings provide automatic joint snugness

Segmental bushings are made with slight bow.

After initial assembly in chain, bushings are straight.

Bow in bushing acts to keep a snug joint, maintaining chain pitch automatically.

WHEN you design with Link-Belt Timing Chains and Sprockets, you get exclusive engineering extras that result in smoother operation, longer life. Take a look at the accompanying sketches. They show you how Link-Belt's Segmental Bushings assure automatic joint snugness.

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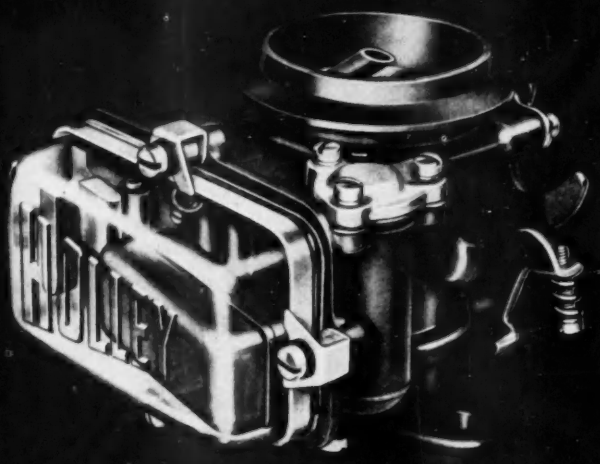
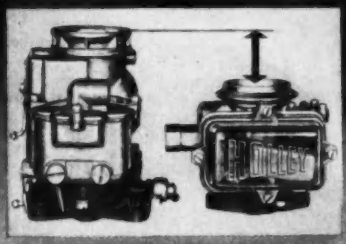


Holley Visi-flo

with a Glass Fuel Bowl

The new Holley Visi-Flo is only four inches high —nearly ⅓ shorter than previous models. The compact design and glass fuel bowl reduce the amount of scarce materials required by 33%.

Original equipment on some '52 model 6-cylinder passenger cars and trucks, the Visi-Flo is 1¼" S.A.E. standard single downdraft for 80-120 h. p. engines. This Holley model 1904 is also available with 1½" standard flange.



Elimination of the air horn casting makes the Visi-Flo 2¼ inches shorter than previous Holley models. This height saving allows the use of a conventional "hat" type air cleaner while at the same time meets the requirements of lower hood lines of the 1952 models.

FOR MORE THAN HALF A CENTURY—
ORIGINAL EQUIPMENT MANUFACTURERS
FOR THE AUTOMOTIVE INDUSTRY

HOLLEY
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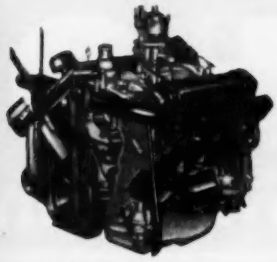
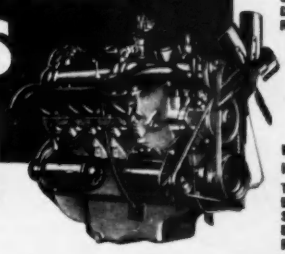
I-13

FORD ANNOUNCES THREE NEW *Heavy Duty* INDUSTRIAL ENGINES

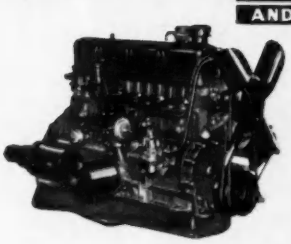
Ford
INDUSTRIAL ENGINES
AND POWER UNITS



FORD "317" INDUSTRIAL ENGINE
Type—V-8, 90° Overhead Valve.
Bore—3.8 inches.
Stroke—3.5 inches.
Displacement—317 cu. in.
Rating (dyn.)—140 b.h.p. @ 2800 rpm.



FORD "279" INDUSTRIAL ENGINE
Type—V-8, 90° Overhead Valve.
Bore—3.56 inches.
Stroke—3.5 inches.
Displacement—279 cu. in.
Rating (dyn.)—125 b.h.p. @ 2800 rpm.



FORD "215" INDUSTRIAL ENGINE
Type—6 cylinder Overhead Valve.
Bore—3.56 inches.
Stroke—3.6 inches.
Displacement—215 cu. in.
Rating (dyn.)—93 b.h.p. @ 2800 rpm.

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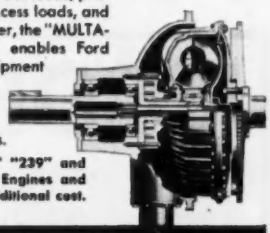
● Now, manufacturers and users of industrial powered equipment have a choice of six great Ford engines . . . all especially designed for industrial applications and incorporating notable advancements for still greater performance and operating economy. With the three new series pictured here and three series in the present line, there is a choice of six engines ranging from 120 to 317 cu. in. displacement.

Our experienced Sales Engineers are at your service in developing engineering recommendations for the most efficient use of Ford Industrial Power in your application.

AND A NEW MULTA-TORQUE

The new Ford "MULTA-TORQUE" Converter offers all the advantages of fluid coupling PLUS torque multiplication. Designed to absorb shock loads, prevent stalling under excess loads, and start bigger loads faster, the "MULTA-TORQUE" Converter enables Ford Engines to power equipment normally requiring much larger, more costly engines in the same applications.



Available with "215," "239" and "254" Ford Industrial Engines and Power Units at low additional cost.

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED

All six engines in the 1952 Ford Line are available as assemblies or complete Power Units, closed or open type.

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1. **RIGHT POWER** for your job—six great engines available in both Power Units and Engine Assemblies.
2. **RIGHT FEATURES**—all the latest advancements of Ford's famed progressive engineering.
3. **RIGHT SERVICE**—Ford Industrial Engine Service is **Nationwide.** Parts obtainable quickly from your nearest Ford Dealer.

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Send us 1952 literature on Ford Industrial Engines checked below:

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☐ "254" 6-Cyl. ☐ "279" V-8 ☐ "317" V-8
☐ "MULTA-TORQUE" Converter

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Mechanical Governors....

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- Provide close regulation over wide operating range, without spring change.
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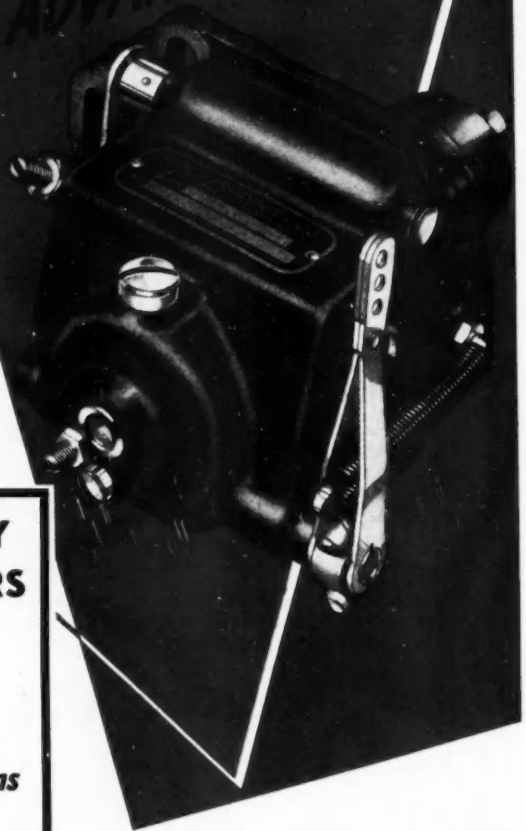
- Do not require daily oilings; use oil seals throughout and have large oil capacity.



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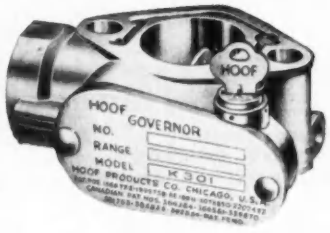

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to fit the job!

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Drilling rigs, centrifugal pumps, generator sets

Earthmovers, logging yarders and loaders

Buses and highway trucks

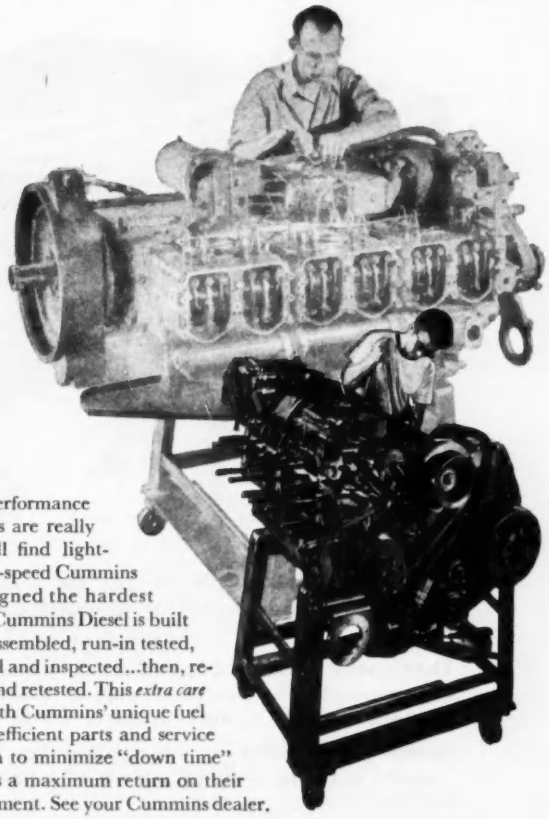
Off-highway trucks, crawler tractors

Shovels, cranes, industrial locomotives and switchers

Lightweight, high-speed Diesels (30-550 hp) for these and many other uses

Cummins® Diesels do so many jobs so much better

they're
BUILT NOT ONCE BUT TWICE



Wherever performance requirements are really rough, you'll find lightweight, high-speed Cummins Diesels assigned the hardest jobs. Every Cummins Diesel is built *TWICE*—assembled, run-in tested, disassembled and inspected...then, reassembled and retested. This *extra care* combines with Cummins' unique fuel system and efficient parts and service organization to minimize "down time" ...give users a maximum return on their diesel investment. See your Cummins dealer.

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That's why you can depend on us to meet your most exacting requirements for *precision* engine bearings, promptly . . . whether in small custom, or huge mass-production quantities.

When you specify our engine bearings for your production, you are selecting a manufacturer who has been a leader in the field for over 25 years.

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N-A-X AC9115 ALLOY STEEL is available in bars as well as flat rolled products. Investigate the outstanding properties and characteristics of this steel and, through its use, conserve the critical material so necessary to our nation.

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FACTS FOR INDUSTRY

FOR RELEASE: September 24, 1951

SERIES: M31L-00

INTERNAL COMBUSTION ENGINES
(EXCEPT AUTOMOTIVE AND AIRCRAFT)
1950

WISCONSIN *Air-Cooled* ENGINES
Again Take *First Place!*

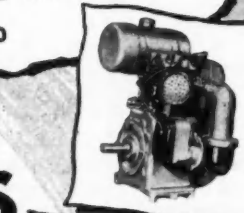
The latest U.S. Bureau of the Census statistics again provide proof of *top preference* for Wisconsin Heavy-Duty Air-Cooled Engines.

According to Census Bureau figures covering ALL carburetor type internal combustion engines (except automotive and aircraft) made by 41 different manufacturers, a total of 566,777 engines of 11 to 175 cu. inches displacement were produced and shipped by these concerns to other companies during 1950. (This does not include so-called "captive" engines built and incorporated into equipment of the same company).

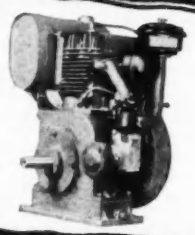
Of the total of 566,777, Wisconsin Motor Corporation figures show that 206,737 were produced by this company, or 36.4% of the total in the specified H.P. range. The balance of 63.6% was divided among 40 other engine builders.

These figures are significant because they again offer outstanding *proof of preference* for Wisconsin Air-Cooled Engines by power equipment builders, distributors, dealers and users of power-operated machines and engines. And this preference is based on PERFORMANCE — best expressed by "Most H.P. Hours" of on-the-job service.

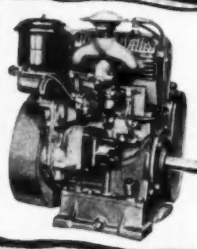
It pays to build, sell and use GOOD ENGINES. You can't do better than to get behind Wisconsin Heavy-Duty Air-Cooled Engines . . . *the line of least sales resistance and top preference.*



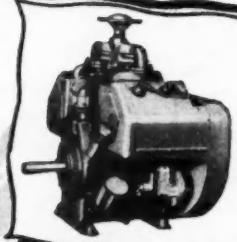
4-cycle single cylinder 3 to 6 hp.



4-cycle single cylinder 6 to 9 hp.



2-cylinder models 7 to 13 hp.



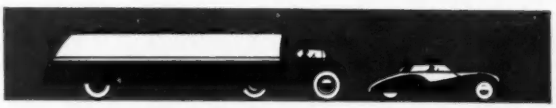
V-type 4-cylinder models 15 to 30 hp.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

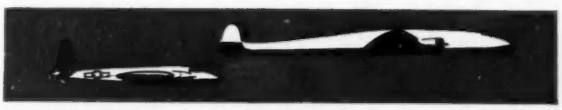
MILWAUKEE 46, WISCONSIN

- **BETTER VALVE SEATS** — faster with **WATERBURY-HALL** grinders.
- **COMPLETE LINE** production type and service shop equipment.
- **ENGINEERING** facilities for your valve seat grinding problems.



BETTER AUTOMOTIVE EQUIPMENT

on the road today carries the names of car and truck producers who precision-grind all valve seats automatically, in as little as 60 seconds, block to block, on WATERBURY-HALL vertical or "V" type Multiple Spindle Grinders.



BETTER AVIATION PERFORMANCE

can be expected when valve seats are produced and serviced on WATERBURY-HALL Wet Type Valve Seat Grinders—specially designed to accommodate current seat materials and seat locations which are otherwise difficult to reach.

DIESEL ECONOMY

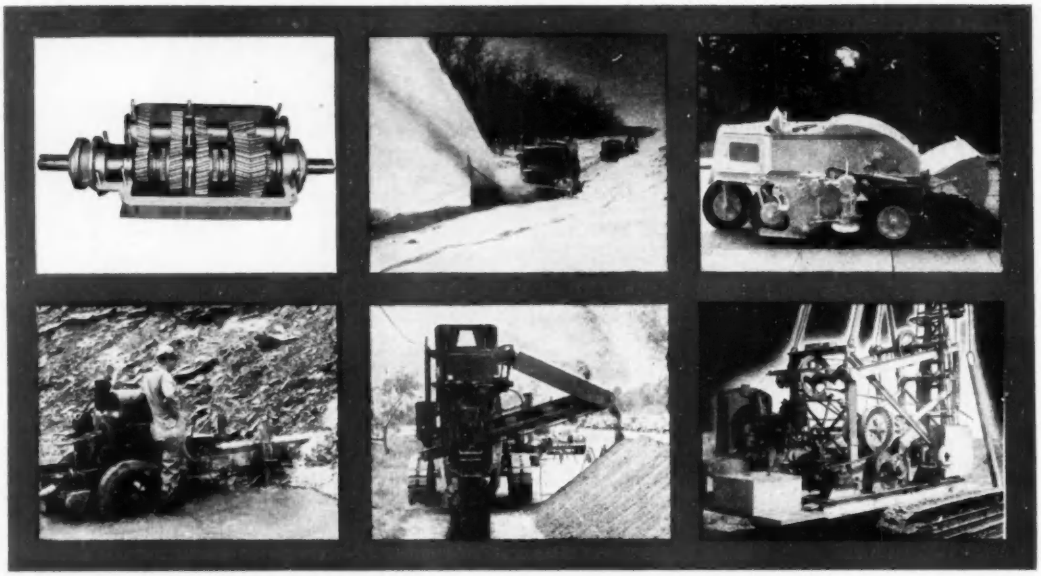
is enhanced by precision valve performance. The WATERBURY-HALL Diesel Valve Seat Grinder is specifically designed to provide, without jamming, the perfect seats necessary for high compression engines—in both production and service.

WATERBURY TOOL DIVISION VICKERS INCORPORATED *A SUBSIDIARY OF THE SPERRY CORPORATION* 164 AURORA STREET, WATERBURY 20, CONN.

An Assurance of Dependable Service

COTTA
HEAVY-DUTY TRANSMISSIONS

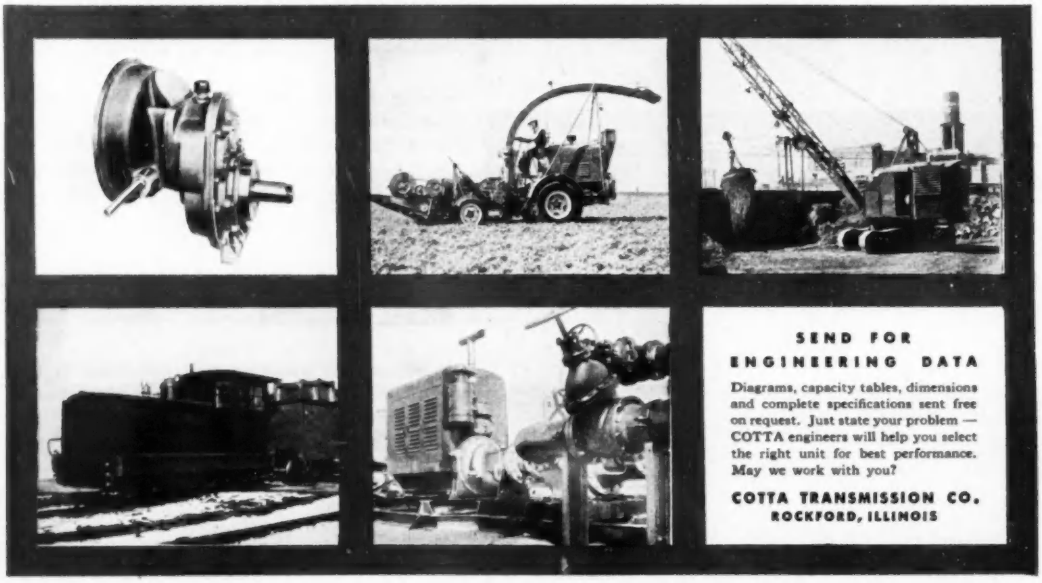
For jobs that ordinary gear-boxes can't handle — heavy-duty loads, continuous day-and-night operation, requiring multi-speeds forward and reverse — come to COTTA for "Engineered-To-Order" Transmissions, custom-designed to fit available space.



An Assurance of Dependable Service

COTTA
HEAVY-DUTY REDUCTION UNITS

Take this low-cost way to adapt higher speeds of new engines to lower rpm required for machine operation. Cotta Reduction Units are available in a broad range of ratios . . . input torque of 150 to 2000 foot pounds — for use on cranes, shovels, pumps, etc.



SEND FOR ENGINEERING DATA

Diagrams, capacity tables, dimensions and complete specifications sent free on request. Just state your problem — COTTA engineers will help you select the right unit for best performance. May we work with you?

COTTA TRANSMISSION CO.
ROCKFORD, ILLINOIS

rademark of stability

SPECIALIZED SERVICES

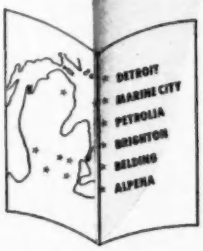
gaskets
Automotive, diesel, electrical, refrigeration and many others

fabricated parts
Dashboard pads and insulators, sound deaders, leaf spring liners, glove compartments, sun visors

glazing tapes
cork and rubber, all rubber types

extruded metals
Aluminum shapes, free cutting brass rods, forging brass rods, brass shapes. Products fabricated from extrusions

packaging
Overhaul kits for overseas service to military specifications



More than a quarter century of service to America's largest manufacturers has proved the strength and stability behind the Dee-Gee trademark.

Large-scale production facilities, in seven modern plants, serve industry in many ways. We welcome the opportunity to discuss your requirements.

SERVING ORIGINAL EQUIPMENT MANUFACTURERS

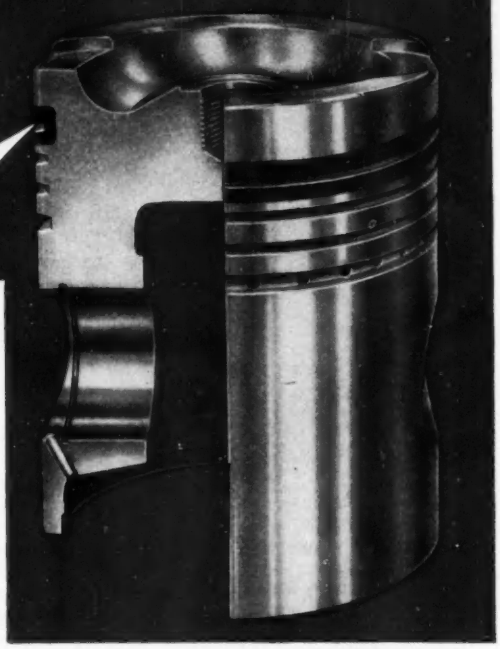
DETROIT GASKET & MANUFACTURING COMPANY

DETROIT 23, MICHIGAN

DUALOY*

THE BI-METALLIC MOLECULAR BONDED PISTON

has no equal



COST CONSCIOUS OPERATORS AGREE that there is no substitute for DUALOY* the bi-metallic piston with the molecular bonded top ring groove protection.

Only DUALOY* can offer you time tested and performance proven security against excessive top ring groove wear. Thousands of installations in every type of equipment—and millions of miles under every type of load and road condition proves that DUALOY* protects top ring installations.

Insist on genuine DUALOY* and avoid the costly overhauls and lay-up times that are due to heavy-duty piston failure.

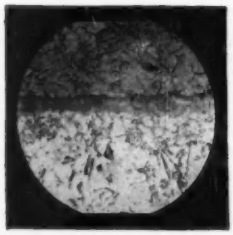
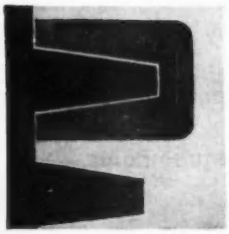


Photo micrograph of DUALOY* bi-metallic molecular bond.



Enlarged cutaway of DUALOY* ni-resist ring groove.

SILV-O-LITE

Better Pistons Since 1922

Silv-o-lite has the most complete line of passenger car and heavy duty pistons available. Heavy duty types are available with or without DUALOY*, according to your requirements for top ring land protection.

Send for Catalog 24 and DUALOY* literature

*Trademark Registered

*The United Engine & Machine Company (manufacturers of Silv-o-lite pistons) are licensed by Fairchild Engine & Airplane Corporation under patents 2396730, 2455457 and 2550879 to use the Al-fin process in the manufacture of bi-metalic molecular bonded pistons.

UNITED ENGINE AND MACHINE COMPANY

310 PREDA STREET · SAN LEANDRO, CALIFORNIA

You can save MONEY and MATERIALS with ROLLED BUSHINGS

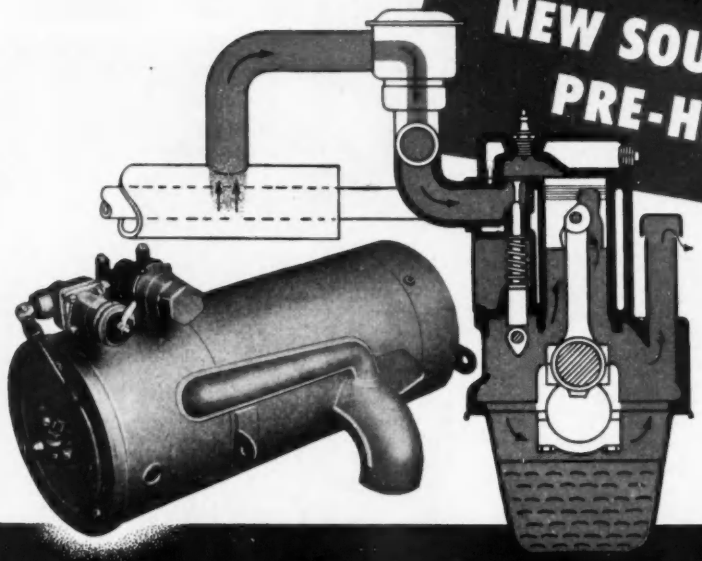
FEDERAL-MOGUL

FEDERAL Mogul L SINCE 1899

FEDERAL-MOGUL CORPORATION 11037 SHOEMAKER, DETROIT 13, MICH.

Another South Wind first!

NEW SOUTH WIND PRE-HEATER



Makes quick engine starting possible

– even at 65° below!

Meets All The Latest Military Requirements

Now solved—by South Wind and this new South Wind Pre-Heater—the problem of quick engine starting at temperatures of 65° below!

The Answer is pre-heating...with clean, non-corrosive heated air applied *directly* on frictional parts *inside* the engine! This system—perfected by South Wind—also heats the lubricating oils. Assures faster, more efficient warm-up of critical parts than any indirect method of transferring heat through coolant and cold engine walls!

Resistance to cranking power is minimized. The engine is cranked with warm parts and warm lubrication. *Only clean heat* is used to raise the temperature of induction air (on either Diesel or gasoline engines). This factor assures normal and reliable ignition . . . for quick, sure starting under cold conditions.

Equally effective on either liquid or air cooled engines, this new South Wind model burns liquid fuel, can be operated automatically or manually. Small in size. Light in weight. It can be easily, quickly installed on practically any type of engine.

Check these exclusive advantages! Only South Wind offers them all in this new method of engine pre-heating

1. **Quick, easier starting at –65°F.**
2. **Conforms to latest military requirements.**
3. **Adequate lubrication at all times.**
4. **Lower maintenance cost.**
5. **Longer engine life.**
6. **No interrupted service.**

Now At Your Disposal. A staff of experienced South Wind Field Engineers is available to assist you with your preheating or heating problems. Write today for their help in adapting this or any other model in the complete South Wind line of heaters for commercial, military or civilian aircraft. South Wind Division, Stewart-Warner Corp., Dept. E-32, 1514 Drover St., Indianapolis 7, Ind.

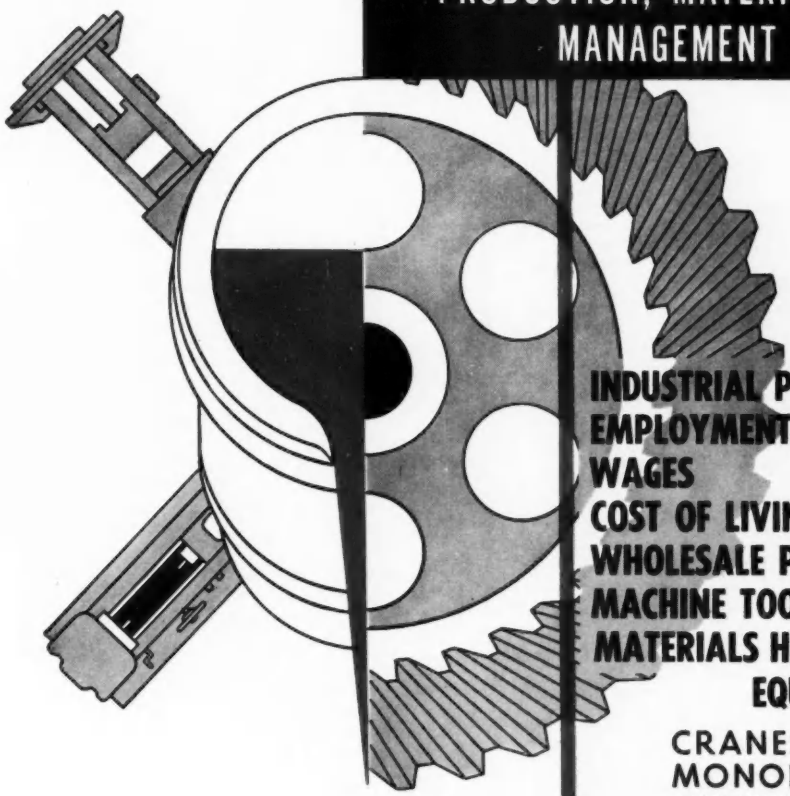
A PRODUCT OF SW STEWART WARNER

South Wind

AIRCRAFT HEATING AND THERMAL ANTI-ICING EQUIPMENT INERT GAS GENERATORS

AUTOMOTIVE INDUSTRIES
34TH ANNUAL STATISTICAL ISSUE

PRODUCTION, MATERIALS AND MANAGEMENT SECTION



INDUSTRIAL PRODUCTION
EMPLOYMENT
WAGES
COST OF LIVING
WHOLESALE PRICES
MACHINE TOOLS
MATERIALS HANDLING EQUIPMENT

CRANES
MONORAILS
INDUSTRIAL TRUCKS
CONVEYORS

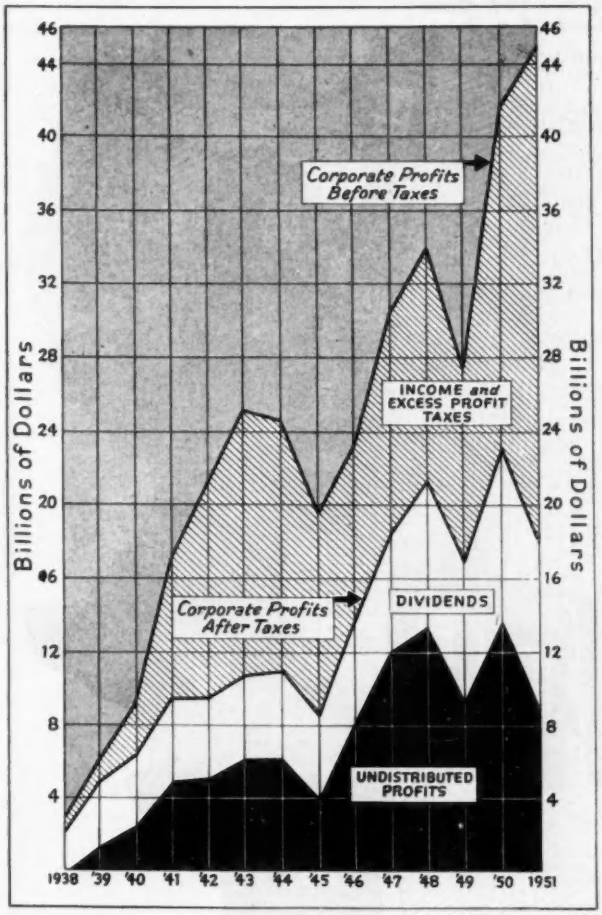
MATERIALS

- **PRODUCTS AT THE A. S. T. E. SHOW**
- **DIRECTORY OF MANUFACTURERS**

Average diameter of a hole
Bearing race matching
Angle between bore and face
Diameter
Thickness
Bore center distance
Crank throw, eliminating all error due to diametral tolerance
Twist
Bend
Typical Dimensions and Relationships measured with
Sheffield
PRECISIONAIRE GAUGE
Lobing or cloverleaf of a centerless ground shaft
Internal radial clearance
Flatness
Distance between hole centers eliminating all error caused by diametral tolerance
Center distance of incomplete holes eliminating all error caused by diametral tolerance
Sheffield corporation
SHEFFIELD

FINANCE

CORPORATE PROFITS, TAXES, DIVIDENDS



Corporate Profits Before and After Taxes

In Millions, 1929-1949; Billions, 1950 and 1951.

National Income Div., Department of Commerce

Year	Corporate Profits Before Taxes	Income and Excess Profit Taxes	Corporate Profits After Taxes	Corporate Dividends	Undistributed Corporate Profits
1934	1,723	746	977	2,596	—1,619
1935	3,224	965	2,259	2,872	— 613
1936	5,684	1,411	4,273	4,557	— 284
1937	6,197	1,512	4,685	4,693	— 8
1938	3,329	1,040	2,289	3,195	— 906
1939	6,467	1,462	5,005	3,796	1,209
1940	9,325	2,878	6,447	4,049	2,398
1941	17,232	7,846	9,386	4,465	4,921
1942	21,098	11,665	9,433	4,297	5,136
1943	25,052	14,406	10,646	4,493	6,153
1944	24,333	13,525	10,808	4,680	6,128
1945	19,717	11,215	8,502	4,699	3,803
1946	23,464	9,583	13,881	5,808	8,073
1947	30,489	11,940	18,549	6,561	11,988
1948	33,880	12,969	20,911	7,467	13,444
1949	27,625	10,601	17,024	7,821	9,203
1950	41.4	18.6	22.8	9.2	13.6
1951P	44.5	26.6	18.0	9.4	8.6

— Withdrawals from surplus. P—Preliminary.

Federal Government Finance

Receipts, Expenditures, Gross Debt

In Millions of Dollars

Year Ending June 30	Net Receipts	Expenditures	Gross Debt
1935	$3,730	$6,521	$28,701
1936	4,069	8,493	33,779
1937	4,979	7,756	36,425
1938	5,762	6,938	37,165
1939	5,103	8,966	40,440
1940	5,265	9,183	42,968
1941	7,227	13,387	48,961
1942	12,696	34,187	72,422
1943	22,202	79,622	136,696
1944	43,892	95,315	201,003
1945	44,762	98,703	258,682
1946	40,027	60,703	269,422
1947	40,043	39,289	258,286
1948	42,211	33,791	252,292
1949	38,246	40,057	252,770
1950	37,045	40,167	257,357
1951	48,142	44,638	255,222

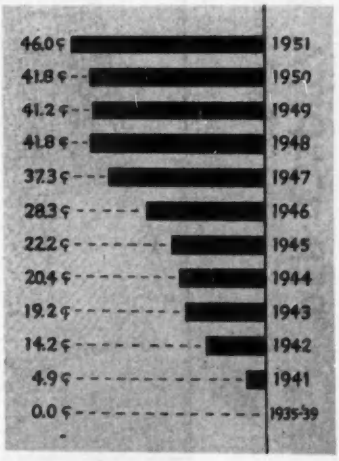
Purchasing Power of the 1935-1939 Dollar*

1951	As Measured by Wholesale Prices	Consumers' Prices	Retail Food Prices
Jan.	44.6	55.1	45.1
Feb.	43.8	54.4	44.2
Mar.	43.7	54.2	44.2
Apr.	43.8	54.2	44.3
May	44.0	53.9	44.0
June	44.2	54.0	44.1
July	44.8	53.9	43.9
Aug.	45.2	53.9	44.1
Sept.	45.3	53.6	44.0
Oct.	45.1	53.4	43.6
Nov.	45.1	53.0	43.2
Dec.	45.2	52.9	43.1
Monthly Averages			
1951	44.6	53.9	44.0
1950	49.8	58.2	48.9
1949	51.9	58.8	49.5
1948	48.7	58.2	47.6
1947	52.8	62.7	51.5
1946	66.4	71.7	62.6
1945	76.0	77.8	71.8
1944	77.4	79.6	73.4
1943	78.0	80.3	72.4
1942	81.4	85.9	80.6
1941	92.1	95.1	94.7
1940	102.3	99.8	103.4
1939	104.3	100.6	104.9

* Office of Business Economics, U. S. Dept. of Commerce.

SHRINKAGE IN PURCHASING VALUE OF THE 1935-1939 DOLLAR

Based on Consumer Prices

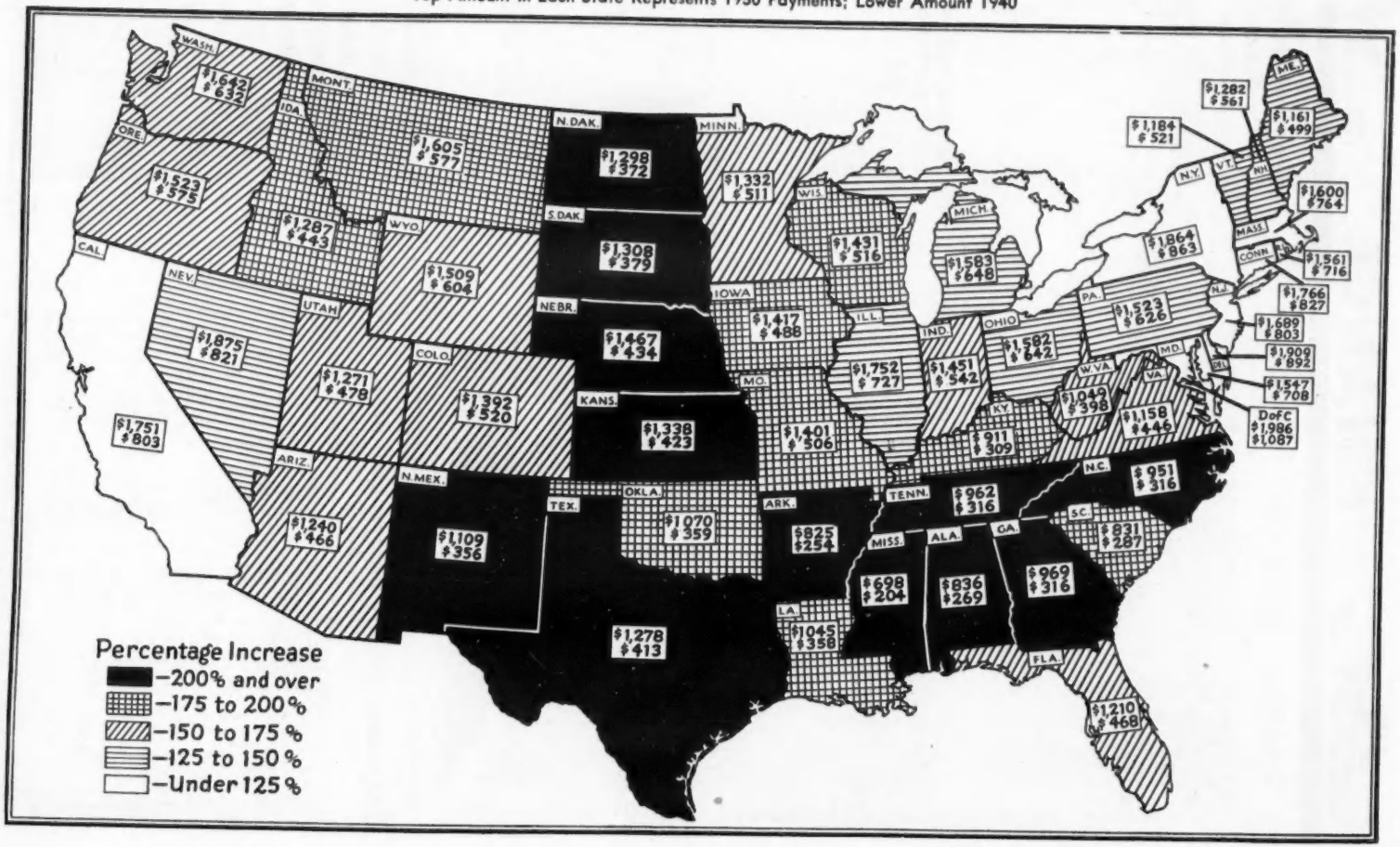


PER CAPITA INCOME PAYMENTS TO INDIVIDUALS

Substantial Increases in All States in 1950 as Compared With 1940

Compiled from data reported by Office of Business Economics, U. S. Department of Commerce

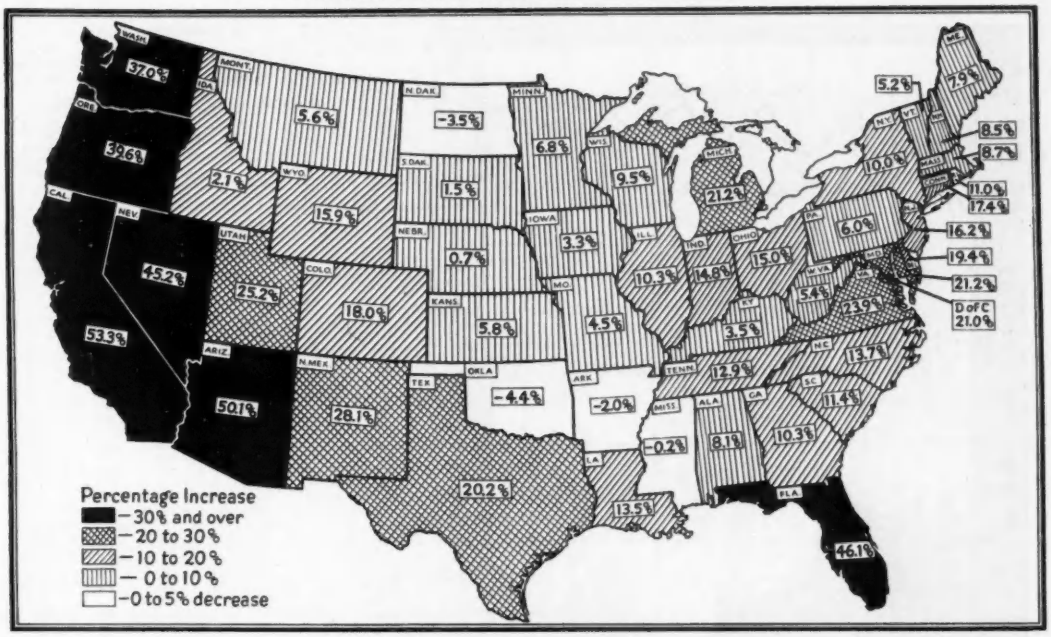
Top Amount in Each State Represents 1950 Payments; Lower Amount 1940



POPULATION

CHANGES IN POPULATION BY STATES

PER CENT CHANGE APRIL 1940 TO APRIL 1950



1950 Population by States, Urban and Rural

(Bureau of the Census)

State	1950 Population Total	Urban	Rural	% Urban	% Inc. 1940 to 1950
Alabama	3,061,742	1,340,937	1,720,806	43.8	8.1
Arizona	749,587	416,000	333,587	55.5	50.1
Arkansas	1,909,511	630,591	1,278,920	33.0	—2.0
California	10,586,223	8,539,420	2,046,803	80.7	53.3
Colorado	1,325,089	831,318	493,771	62.7	18.0
Connecticut	2,007,280	1,558,642	448,638	77.6	17.4
Delaware	318,085	199,122	118,963	62.6	19.4
Dist. of Col.	802,178	802,178	.....	100.0	21.0
Florida	2,771,305	1,813,890	957,415	65.5	46.1
Georgia	3,444,578	1,559,447	1,885,131	45.3	10.3
Idaho	588,637	252,549	336,088	42.9	12.1
Illinois	8,712,176	6,759,271	1,952,905	77.6	10.3
Indiana	3,934,224	2,357,196	1,577,028	59.9	14.8
Iowa	2,621,073	1,250,938	1,370,135	47.7	3.3
Kansas	1,905,299	993,220	912,079	52.1	5.8
Kentucky	2,944,806	1,084,070	1,860,736	36.8	3.5
Louisiana	2,683,516	1,471,696	1,211,820	54.8	13.5
Maine	913,774	472,000	441,774	51.7	7.9
Maryland	2,343,001	1,615,902	727,099	69.0	28.6
Massachusetts	4,690,514	3,959,239	731,275	84.4	8.7
Michigan	6,371,766	4,503,084	1,868,682	70.7	21.2
Minnesota	2,982,483	1,624,914	1,357,569	54.5	6.8
Mississippi	2,178,914	607,162	1,571,752	27.9	—0.2
Missouri	3,954,653	2,432,715	1,521,938	61.5	4.5
Montana	591,024	258,034	332,990	43.7	5.6
Nebraska	1,325,510	621,905	703,605	46.9	0.7
Nevada	160,083	91,625	68,458	57.2	45.2
New Hampshire	533,242	306,806	226,436	57.5	8.5
New Jersey	4,835,329	4,186,207	649,122	86.6	16.2
New Mexico	681,187	341,889	339,298	50.2	28.1
New York	14,830,192	12,682,446	2,147,746	85.5	10.0
North Carolina	4,061,929	1,368,101	2,693,828	33.7	13.7
North Dakota	619,636	164,817	454,819	26.6	—2.5
Ohio	7,946,627	5,578,274	2,368,353	70.2	15.9
Oklahoma	2,233,351	1,139,481	1,093,870	51.0	—4.4
Oregon	1,521,341	819,318	702,023	53.9	39.6
Pennsylvania	10,498,012	7,403,036	3,094,976	70.5	6.0
Rhode Island	791,896	667,212	124,684	84.3	11.0
South Carolina	2,117,027	777,921	1,339,106	36.7	11.4
South Dakota	652,740	216,710	436,030	33.2	1.5
Tennessee	3,291,718	1,452,602	1,839,116	44.1	12.9
Texas	7,711,194	4,838,060	2,873,134	62.7	20.2
Utah	688,862	449,855	239,007	65.3	25.2
Vermont	377,747	137,612	240,135	36.4	5.2
Virginia	3,318,680	1,560,115	1,758,565	47.0	23.9
Washington	2,378,963	1,503,166	875,797	63.2	37.0
West Virginia	2,005,552	694,487	1,311,065	34.6	5.4
Wisconsin	3,434,575	1,987,888	1,446,687	57.9	9.5
Wyoming	290,529	144,618	145,911	49.8	15.9
Total	150,697,361	96,467,686	54,229,675	64.0	14.5

— Denotes decrease.

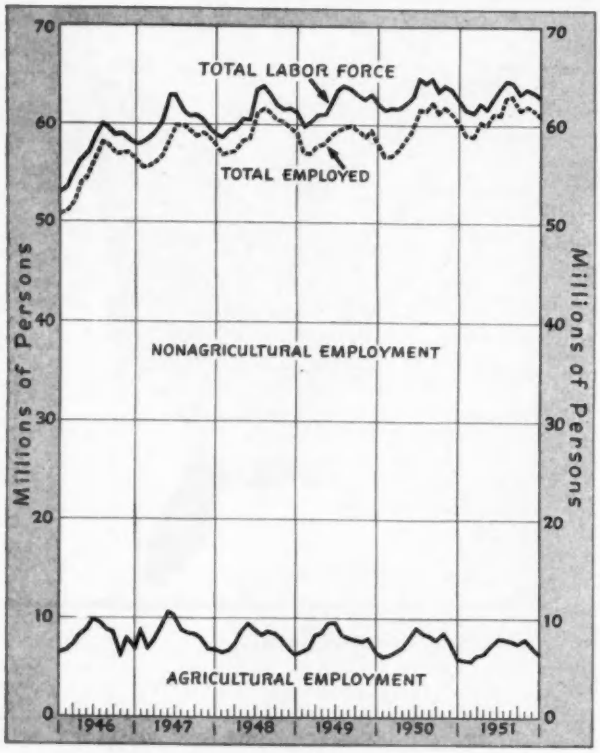
Population Characteristics, 1900-1950

As reported by the Bureau of the Census

Year	Sex: Male	Sex: Female	Race: White	Race: Negro	Race: Other	Residence: Urban	Residence: Rural	Median Age: All	Median Age: White
1950	74,663,000	76,064,000	135,215,000	14,894,000	588,000	96,467,000	54,230,000	30.1	30.7
1940	66,061,592	65,607,683	118,214,870	12,865,518	588,887	74,423,702	57,245,573	29.0	29.5
1930	62,137,080	60,637,966	110,286,740	11,891,143	597,163	68,954,823	53,820,223	26.5	26.9
1920	53,900,431	51,810,189	94,820,915	10,643,131	426,574	54,157,973	51,552,647	25.3	25.6
1910	47,332,277	44,639,989	81,731,957	9,827,763	412,546	41,998,932	49,973,334	24.1	24.5
1900	38,816,448	37,178,127	66,809,196	8,833,994	351,385	30,159,921	45,834,654	22.9	23.4

THE LABOR FORCE

TOTAL U. S. EMPLOYMENT—BUREAU OF LABOR STATISTICS



In Thousands

Month	Civilian Labor Force	Total Employment	Unemployment	Mfg. Employment
1951				
Jan.	61,514	59,010	2,503	15,784
Feb.	61,313	58,905	2,407	15,978
Mar.	62,325	60,179	2,147	16,022
Apr.	61,789	60,044	1,744	15,955
May	62,803	61,193	1,609	15,853
June	63,783	61,803	1,980	15,956
July	64,382	62,526	1,856	15,813
Aug.	64,208	62,630	1,578	16,008
Sept.	63,186	61,580	1,606	16,039
Oct.	63,452	61,836	1,616	15,948
Nov.	63,164	61,336	1,828	15,899
Dec.	62,688	61,014	1,674	15,874
Average	62,884	61,005	1,879	15,927
1950				
Jan.	61,427	56,947	4,480	13,980
Feb.	61,637	56,953	4,684	13,997
Mar.	61,675	57,551	4,123	14,103
Apr.	62,183	58,668	3,515	14,162
May	62,788	59,731	3,057	14,413
June	64,866	61,482	3,384	14,666
July	64,427	61,214	3,213	14,777
Aug.	64,867	62,367	2,500	15,450
Sept.	63,567	61,226	2,341	15,685
Oct.	63,704	61,764	1,940	15,827
Nov.	63,512	61,271	2,240	15,765
Dec.	62,538	60,308	2,229	15,789
Average	63,099	59,957	3,142	14,884
Monthly Averages				
1949	62,105	58,710	3,395	14,146
1948	61,442	59,378	2,064	15,286
1947	60,168	58,027	2,142	15,247
1946	57,520	55,250	2,270	14,461
1945	53,860	52,820	1,040	15,302
1944	54,630	53,960	670	17,111
1943	55,540	54,470	1,070	17,381
1942	56,410	53,750	2,660	15,051
1941	55,910	50,350	5,560	12,974
1940	55,640	47,520	8,120	10,780
1939	55,230	45,750	9,480	10,078

Production Workers

In Thousands

Month	EMPLOYMENT: Agricultural	EMPLOYMENT: Nonagricultural	PRODUCTION WORKERS: All Manufacturing	PRODUCTION WORKERS: Durable Goods	PRODUCTION WORKERS: Automobiles (Incl. Parts)	PRODUCTION WORKERS: Aircraft and Parts
1951						
Jan.	6,018	52,993	13,018	7,256	767	264
Feb.	5,930	52,976	13,186	7,371	791	288
Mar.	6,393	53,785	13,189	7,428	793	299
Apr.	6,645	53,400	13,108	7,445	774	309
May	7,449	53,753	12,993	7,406	752	318
June	8,035	53,768	13,064	7,409	738	333
July	7,908	54,618	12,885	7,226	684	347
Aug.	7,688	54,942	13,069	7,261	675	357
Sept.	7,526	54,054	13,087	7,279	679	361
Oct.	7,668	54,168	12,997	7,293	656	364
Nov.	7,022	54,314	12,915	7,331	...	...
Dec.	6,378	54,636	12,889	7,330	...	...
Average	7,054	53,950	13,033	7,336	731	324
1950						
Monthly Averages						
1950	7,507	52,540	12,264	6,622	714	202
1949	8,026	50,684	11,597	6,096	644	189
1948	7,973	51,405	12,717	6,909	658	167
1947	8,266	49,761	12,794	7,010	649	167
1946	8,320	46,930	12,105	6,404	544	156
1945	8,580	44,240	12,864	7,554	538	558
1944	8,950	45,010	14,607	9,217	663	958
1943	9,080	45,390	15,014	9,565	642	1,029
1942	9,250	44,500	12,854	7,585	490	645
1941	9,100	41,250	10,877	5,928	571	269
1940	9,540	37,980	8,811	4,454	465	115
1939	9,610	36,140	8,192	3,868	402	49

Employment by Sex

In Thousands

Month	Total Civilian Labor Force: Male	Total Civilian Labor Force: Female	Total Employment: Male	Total Employment: Female
1951				
Jan.	43,093	18,421	41,433	17,577
Feb.	42,894	18,419	41,300	17,605
Mar.	42,379	18,946	42,102	18,077
Apr.	42,182	18,607	42,154	17,890
May	43,508	19,294	42,558	18,635
June	44,316	19,467	43,149	18,654
July	44,602	19,780	43,504	19,022
Aug.	44,720	19,488	43,764	18,866
Sept.	43,672	19,514	42,830	18,750
Oct.	43,522	19,930	42,632	19,204
Nov.	43,346	19,818	42,344	18,992
Dec.	...	...	...	...
Average	43,658	19,244	42,524	18,479
1950				
Jan.	42,715	17,712	40,453	16,494
Feb.	43,769	17,868	40,342	16,610
Mar.	43,879	17,796	40,877	16,674
Apr.	44,120	18,063	41,492	17,176
May	44,316	18,472	42,186	17,545
June	45,429	19,437	43,229	18,253
July	45,708	18,719	43,582	17,632
Aug.	45,818	19,049	44,154	18,213
Sept.	44,726	18,841	43,244	17,982
Oct.	44,268	19,436	43,096	18,668
Nov.	44,019	19,493	42,710	18,561
Dec.	43,535	19,002	42,076	18,232
Average	44,692	18,657	42,287	17,670
Monthly Averages				
1949	44,075	18,030	41,660	17,049
1948	43,858	17,584	42,428	16,950
1947	43,272	16,896	41,677	16,350
1946	40,740	16,780	38,940	16,310
1945	34,830	19,030	34,210	18,610

INDUSTRIAL PRODUCTION

INDEXES OF INDUSTRIAL PRODUCTION

FEDERAL RESERVE BOARD, 1935-39 = 100

Total Industrial Production

Unadjusted for Seasonal Variation

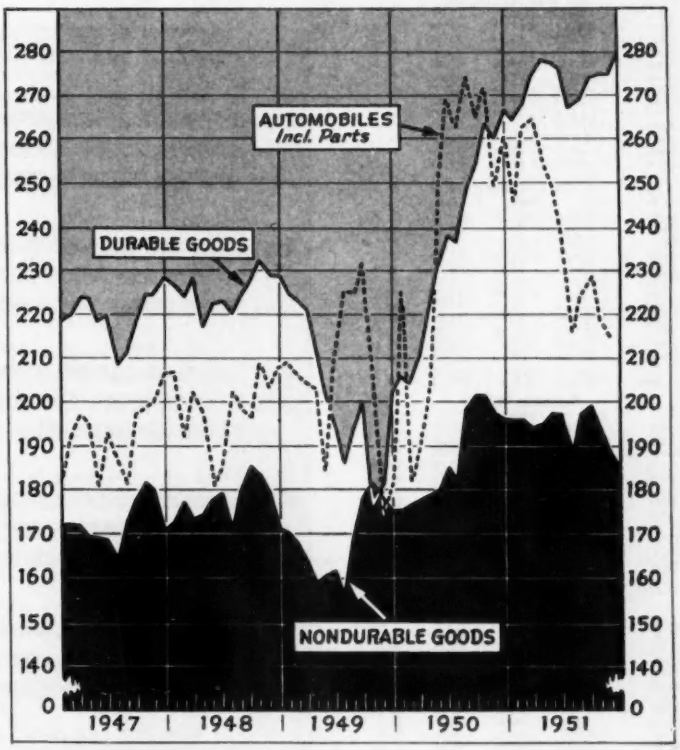
	1951	1950	1949	1948	1947
Jan.	216	179	187	189	185
Feb.	217	177	185	190	185
Mar.	219	183	181	188	187
Apr.	222	188	177	186	185
May	223	195	174	192	186
June	223	200	170	193	185
July	214	198	163	187	178
Aug.	220	212	174	194	185
Sept.	223	216	179	197	190
Oct.	222	220	169	199	194
Nov.	219	215	174	195	193
Dec.	218	216	178	190	190
Average	201	200	176	192	187

Manufactures

	1951	1950	1949	1948	1947
Jan.	226	189	195	197	192
Feb.	228	188	193	197	193
Mar.	231	191	190	197	195
Apr.	232	197	183	193	193
May	233	203	179	197	191
June	232	209	176	199	191
July	223	207	169	193	184
Aug.	229	221	181	200	191
Sept.	233	224	189	203	196
Oct.	230	229	179	205	200
Nov.	228	226	179	202	200
Dec.	227	227	188	197	197
Average	229	209	183	198	194

Durable Goods

	1951	1950	1949	1948	1947
Jan.	264	206	225	226	218
Feb.	268	204	223	224	220
Mar.	275	210	221	228	224
Apr.	278	221	212	217	222
May	277	232	202	222	219
June	276	238	195	223	220
July	267	237	186	220	209
Aug.	269	249	194	224	212
Sept.	274	253	200	227	218
Oct.	275	263	476	232	224
Nov.	275	260	181	229	224
Dec.	280	266	201	229	228
Average	273	237	202	225	220



Automobiles (Incl. Parts)

	1951	1950	1949	1948	1947
Jan.	246	224	209	206	181
Feb.	262	182	206	192	190
Mar.	265	189	204	202	107
Apr.	255	204	203	197	193
May	248	249	184	179	179
June	238	268	211	185	181
July	216	262	225	202	185
Aug.	223	273	225	198	180
Sept.	228	265	231	197	197
Oct.	219	271	216	206	198
Nov.	215	249	175	200	200
Dec.		260	181	212	206
Average	237	241	206	197	191

Nondurable Goods

	1951	1950	1949	1948	1947
Jan.	196	175	170	173	171
Feb.	196	176	168	176	171
Mar.	194	177	164	173	171
Apr.	195	178	159	174	169
May	197	180	160	177	169
June	197	184	161	179	168
July	188	182	156	171	164
Aug.	197	198	170	180	173
Sept.	199	201	179	185	178
Oct.	193	201	181	183	181
Nov.	188	197	178	179	180
Dec.	185	196	175	171	171
Average	194	187	168	177	172

Minerals

	1951	1950	1949	1948	1947
Jan.	159	125	143	149	141
Feb.	153	113	143	149	141
Mar.	153	139	131	136	143
Apr.	162	138	146	145	139
May	168	147	148	164	153
June	169	155	137	163	152
July	161	149	128	158	145
Aug.	170	163	134	164	155
Sept.	171	168	123	160	158
Oct.	176	169	112	161	158
Nov.	170	159	141	160	155
Dec.	164	153	128	151	151
Average	165	148	135	155	149

MANUFACTURERS' SALES

Based on monthly data adjusted for seasonal variation

As reported by Office of Business Economics, U. S. Department of Commerce

Total Manufacturing

1951	$265,514,000,000
1950	235,264,000,000
1949	200,313,000,000
1948	213,846,000,000
1947	191,044,000,000
1946	151,426,000,000

Durable Goods

1951	$124,719,000,000
1950	104,003,000,000
1949	83,573,000,000
1948	88,826,000,000
1947	77,587,000,000
1946	57,963,000,000

Automobiles (Incl. Parts)

1951	$19,971,000,000
1950	17,622,000,000
1949	15,253,000,000
1948	13,881,000,000
1947	11,466,000,000
1946	6,610,000,000

WAGES

EARNINGS OF PRODUCTION WORKERS—BUREAU OF LABOR STATISTICS

All Manufacturing

	Average Earnings		"Real" Weekly Earnings‡	Average Hrs. per Week
	Hourly	Weekly		
1951				
Jan.	$1.555	$63.76	$35.13	41.0
Feb.	1.561	63.84	34.73	40.9
Mar.	1.571	64.57	35.00	41.1
Apr.	1.578	64.70	35.05	41.0
May	1.586	64.55	34.82	40.7
June	1.599	65.08	35.14	40.7
July	1.598	64.24	34.63	40.2
Aug.	1.596	64.32	34.67	40.3
Sept.	1.612	65.49	35.10	40.6
Oct.	1.615	65.41	34.90	40.5
Nov.	1.625	65.81	34.89	40.5
Dec.	1.635	67.36	35.62	41.2
Aver.	$1.594	$64.93	$34.98	40.7
1950				
Jan.	$1.418	$56.29	$33.47	39.7
Feb.	1.420	56.37	33.57	39.7
Mar.	1.424	56.53	33.57	39.7
Apr.	1.434	56.93	33.79	39.7
May	1.442	57.54	33.99	39.9
June	1.453	58.85	34.58	40.5
July	1.462	59.21	34.42	40.5
Aug.	1.464	60.32	34.79	41.2
Sept.	1.479	60.64	34.73	41.0
Oct.	1.501	61.99	35.39	41.3
Nov.	1.514	62.23	35.28	41.1
Dec.	1.543	63.88	35.73	41.4
Aver.	$1.465	$59.33	$34.51	40.5

Durable Goods

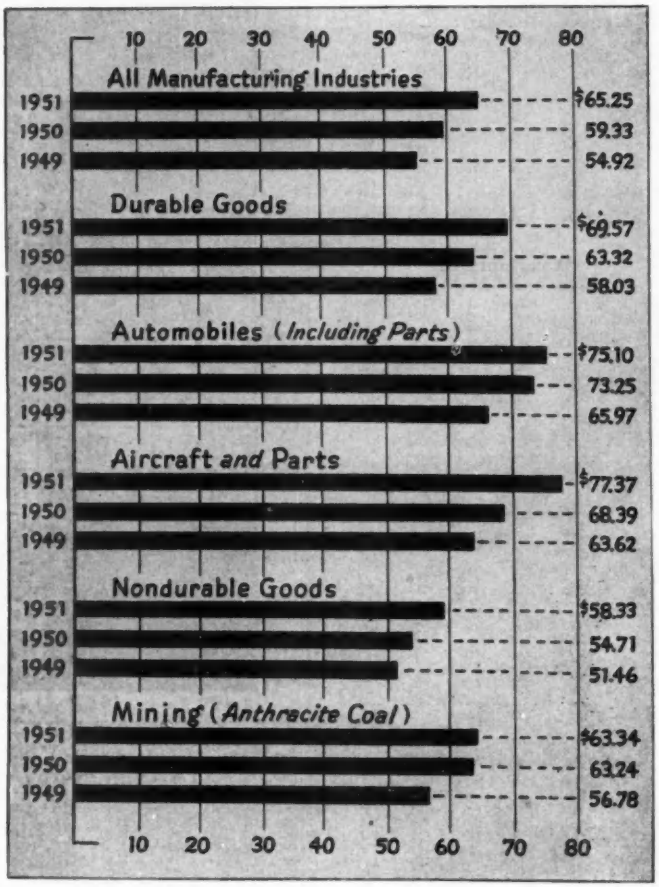
	Average Earnings		"Real" Weekly Earnings‡	Average Hrs. per Week
	Hourly	Weekly		
1951				
Jan.	$1.630	$67.65	$37.27	41.5
Feb.	1.639	68.18	37.09	41.6
Mar.	1.654	69.30	37.56	41.9
Apr.	1.659	69.68	37.75	42.0
May	1.665	69.60	37.54	41.8
June	1.681	70.27	37.94	41.9
July	1.682	68.79	37.08	41.2
Aug.	1.684	69.55	37.49	41.5
Sept.	1.707	71.01	38.05	41.6
Oct.	1.706	71.14	37.96	41.7
Nov.	1.711	71.01	37.65	41.5
Dec.	1.724	72.53	38.38	42.1
Aver.	$1.678	$69.90	$37.66	41.6
1950				
Jan.	$1.485	$59.40	$35.31	40.0
Feb.	1.483	59.47	35.42	40.1
Mar.	1.486	59.74	35.48	40.2
Apr.	1.499	61.01	36.21	40.7
May	1.509	61.57	36.37	40.8
June	1.522	62.86	36.93	41.3
July	1.533	63.01	36.63	41.1
Aug.	1.539	64.33	37.10	41.8
Sept.	1.562	65.14	37.31	41.7
Oct.	1.577	66.39	37.81	42.1
Nov.	1.587	66.34	37.61	41.8
Dec.	1.619	68.32	38.21	42.2
Aver.	$1.537	$63.32	$36.83	41.2

Automobiles (Incl. Parts)

	Average Earnings		"Real" Weekly Earnings‡	Average Hrs. per Week
	Hourly	Weekly		
1951				
Jan.	$1.847	$71.48	$39.38	38.7
Feb.	1.862	74.29	40.42	39.9
Mar.	1.889	76.13	41.26	40.3
Apr.	1.877	74.52	40.37	39.7
May	1.882	74.90	40.40	39.8
June	1.925	74.88	40.43	38.9
July	1.934	73.30	39.51	37.9
Aug.	1.932	76.31	41.14	39.5
Sept.	1.947	77.88	41.74	40.0
Oct.	1.948	77.34	41.27	39.7
Nov.	1.951	76.67	40.65	39.3
Dec.	1.969	79.35	41.96	40.3
Aver.	$1.914	$75.59	$40.71	39.5
1950				
Jan.	$1.715	$70.14	$41.70	40.9
Feb.	1.708	67.64	40.28	39.6
Mar.	1.710	69.08	41.02	40.4
Apr.	1748	73.77	43.79	42.2
May	1.731	71.66	42.32	41.4
June	1.770	75.76	44.51	42.8
July	1.766	74.35	43.23	42.1
Aug.	1.778	75.21	43.37	42.3
Sept.	1.818	73.81	42.27	40.6
Oct.	1.830	75.21	42.83	41.1
Nov.	1.842	72.76	41.25	39.5
Dec.	1.865	76.28	42.66	40.9
Aver.	$1.778	$73.25	$42.61	41.2

‡ Weekly Earnings adjusted to Consumers' Price Index.

AVERAGE WEEKLY EARNINGS IN SELECTED INDUSTRIES



Nondurable Goods

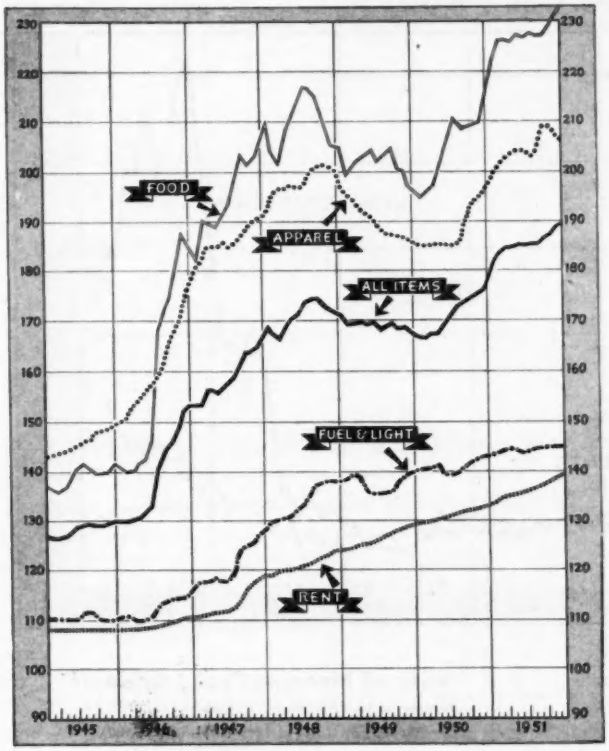
	Average Earnings		"Real" Weekly Earnings‡	Average Hrs. per Week
	Hourly	Weekly		
1951				
Jan.	$1.456	$58.53	$32.25	40.2
Feb.	1.458	58.32	31.73	40.0
Mar.	1.460	58.40	31.65	40.0
Apr.	1.465	58.16	31.51	39.7
May	1.474	57.93	31.24	39.3
June	1.484	58.47	31.57	39.4
July	1.488	58.48	31.53	39.3
Aug.	1.481	57.91	31.22	39.1
Sept.	1.489	58.67	31.44	39.4
Oct.	1.491	58.09	30.85	38.9
Nov.	1.506	59.04	31.30	39.2
Dec.	1.511	60.44	31.96	40.0
Aver.	$1.480	$58.53	$31.53	39.56
1950				
Jan.	$1.343	$52.91	$31.46	39.4
Feb.	1.350	53.06	31.60	39.3
Mar.	1.353	53.04	31.50	39.2
Apr.	1.355	52.17	30.96	38.5
May	1.358	52.83	31.20	38.9
June	1.365	53.92	31.68	39.5
July	1.375	54.73	31.82	39.8
Aug.	1.374	55.65	32.09	40.5
Sept.	1.379	55.30	31.67	40.1
Oct.	1.404	56.58	32.22	40.3
Nov.	1.419	57.19	32.42	40.3
Dec.	1.443	58.44	32.68	40.5
Aver.	$1.378	$54.71	$31.83	39.7

‡ Weekly Earnings adjusted to Consumers' Price Index.

COST OF LIVING

CONSUMERS' PRICE INDEX—BUREAU OF LABOR STATISTICS

Based on Monthly Average of 1935-1939 = 100



All Items

	1951	1950	1949	1948
Jan.	181.5	168.2	171.7	169.3
Feb.	183.8	167.9	169.9	168.0
Mar.	184.5	168.4	170.4	167.5
Apr.	184.6	168.5	170.7	169.9
May	185.4	169.3	170.2	171.1
June	185.2	170.2	170.6	172.4
July	185.5	172.0	169.6	174.4
Aug.	185.5	173.4	169.9	175.2
Sept.	186.6	174.6	170.7	175.2
Oct.	187.4	175.6	169.7	174.4
Nov.	188.6	176.4	169.8	173.0
Dec.	189.1	178.8	168.8	172.2
Average	185.6	171.9	170.2	171.9

Apparel

	1951	1950	1949	1948
Jan.	198.5	185.0	196.5	192.1
Feb.	202.0	184.9	195.1	195.1
Mar.	203.1	185.1	193.9	196.3
Apr.	203.6	184.9	192.5	196.4
May	204.0	184.7	191.3	197.5
June	204.0	184.6	190.3	196.9
July	203.3	184.5	188.5	197.1
Aug.	203.6	185.7	187.4	199.7
Sept.	209.0	189.8	187.2	201.0
Oct.	208.9	193.0	186.8	201.8
Nov.	207.6	194.3	186.3	201.4
Dec.	206.8	195.5	185.8	200.4
Average	204.5	187.7	190.1	198.0

Food

	1951	1950	1949	1948
Jan.	221.9	196.0	204.8	209.7
Feb.	226.0	194.9	199.7	204.7
Mar.	226.2	196.6	201.6	202.3
Apr.	225.7	197.3	202.8	207.9
May	227.4	199.8	202.4	210.9
June	226.9	203.1	204.3	214.1
July	227.7	208.2	201.7	216.8
Aug.	227.0	209.9	202.6	216.6
Sept.	227.3	210.0	204.2	215.2
Oct.	229.2	210.6	200.6	211.5
Nov.	231.4	210.8	200.8	207.5
Dec.	232.2	216.3	197.3	205.0
Average	227.4	204.5	201.9	210.2

Fuel and Light

	1951	1950	1949	1948
Jan.	143.3	140.0	138.2	129.5
Feb.	143.9	140.1	138.8	130.0
Mar.	144.2	140.3	138.9	130.3
Apr.	144.0	140.3	137.4	130.7
May	143.6	138.8	135.4	131.8
June	143.6	139.1	135.6	132.6
July	144.0	139.4	135.6	134.8
Aug.	144.2	140.2	135.8	136.8
Sept.	144.4	141.2	137.0	137.3
Oct.	144.6	142.0	138.4	137.8
Nov.	144.8	142.5	139.1	137.9
Dec.	144.9	142.8	139.7	137.8
Average	144.1	140.6	137.5	133.9

House Furnishings

	1951	1950	1949	1948
Jan.	207.4	184.7	196.5	192.8
Feb.	209.7	185.2	195.6	193.0
Mar.	210.7	185.3	193.8	194.9
Apr.	211.8	185.4	191.9	194.7
May	212.6	185.9	189.5	193.6
June	212.5	184.8	187.3	194.8
July	212.4	186.1	186.8	195.9
Aug.	210.8	189.1	184.8	196.2
Sept.	211.1	194.2	185.6	198.1
Oct.	210.4	198.7	185.2	198.8
Nov.	210.8	201.1	185.4	198.7
Dec.	210.2	203.2	185.4	195.6
Average	210.9	190.2	189.0	195.8

Rent

	1951	1950	1949	1948
Jan.	133.2	129.4	124.4	118.9
Feb.	134.0	129.7	124.8	119.2
Mar.	134.7	129.8	125.1	119.6
Apr.	135.1	130.1	125.5	119.7
May	135.4	130.6	125.8	120.3
June	135.7	130.9	126.2	120.7
July	136.2	131.3	126.4	121.1
Aug.	136.8	131.6	126.7	121.7
Sept.	137.5	131.8	127.3	122.6
Oct.	138.2	132.0	127.8	122.9
Nov.	138.9	132.5	128.4	123.2
Dec.	139.2	132.9	128.8	124.0
Average	136.2	131.0	126.4	121.2

Wholesale Prices of Selected Commodities

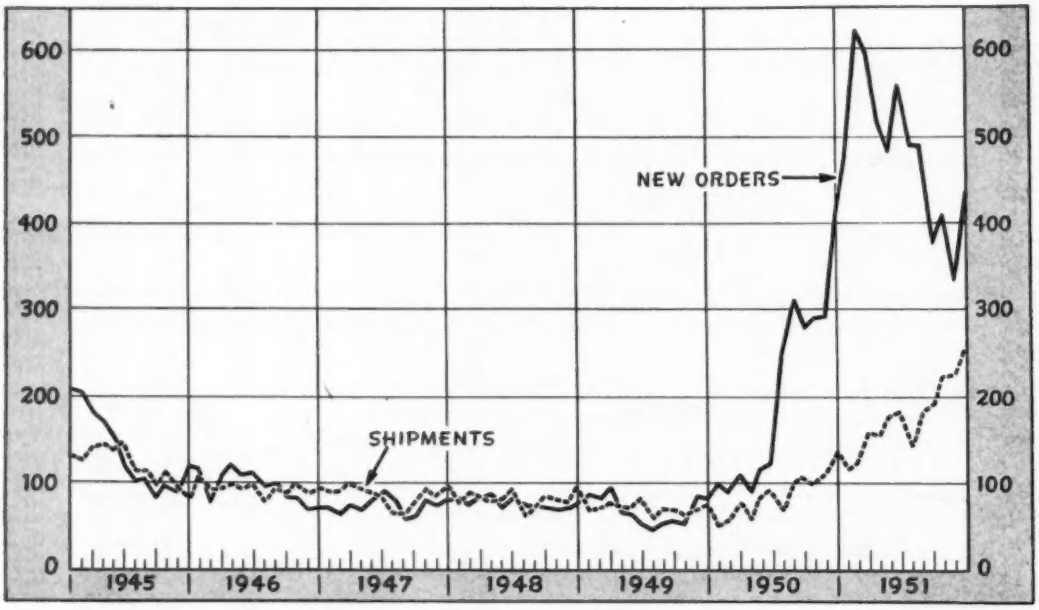
Bureau of Labor Statistics' Indices, 1926 = 100

1951	All Commodities	Farm Products	Foods	Textile Products	Metals and Metal Products	Building Materials	Raw Materials	Manufactured Products
Jan.	180.1	194.2	182.2	178.2	187.5	226.1	192.6	173.1
Feb.	182.6	202.6	187.6	181.1	188.1	228.1	199.1	175.6
Mar.	184.0	203.8	186.6	183.2	188.8	228.6	199.4	175.8
Apr.	183.6	202.5	185.9	182.8	189.0	228.5	197.7	176.1
May	182.9	199.6	187.3	182.1	188.8	227.8	195.5	176.2
June	181.7	198.6	186.3	177.7	188.2	225.6	194.7	175.5
July	179.4	194.0	186.0	173.2	187.9	223.7	189.9	175.1
Aug.	178.0	190.6	187.3	167.5	188.1	222.5	187.5	174.4
Sept.	177.6	189.2	188.0	163.2	189.1	223.0	187.0	174.2
Oct.	178.1	192.3	189.4	157.7	191.2	223.6	188.9	174.3
Nov.	178.3	195.1	188.8	159.4	191.5	224.5	189.6	174.1
Dec.	177.8	193.6	187.3	160.5	191.7	224.0	188.8	173.9
Average	180.4	196.3	186.9	172.2	189.1	225.5	192.6	174.8
1950								
Jan.	151.4	154.7	154.8	138.5	168.5	145.8	159.8	148.1
Feb.	152.8	159.1	156.7	138.2	168.7	146.0	162.4	149.1
Mar.	152.7	159.4	155.5	137.3	168.6	146.1	162.8	148.8
Apr.	152.8	159.3	155.3	136.4	168.8	146.3	162.5	149.3
May	155.9	164.7	159.9	136.1	169.9	147.6	166.3	152.1
June	157.3	165.9	162.1	136.8	171.9	148.7	167.7	153.5
July	162.9	176.0	171.4	142.6	172.4	151.6	175.8	158.0
Aug.	166.4	177.6	174.6	149.5	174.3	155.5	179.1	161.2
Sept.	169.5	180.4	177.2	154.3	176.7	159.3	181.8	164.0
Oct.	169.1	177.8	172.5	163.1	178.6	161.5	180.2	163.5
Nov.	171.7	183.7	175.2	166.8	180.4	163.7	184.5	165.1
Dec.	175.3	187.4	179.0	171.4	184.9	166.7	187.1	169.0
Average	161.5	170.4	166.2	148.0	173.6	153.2	172.4	156.8

MACHINE TOOLS

INDEX OF MACHINE TOOL NEW ORDERS AND SHIPMENTS

Based on Monthly Average of 1945-1947 = 100



Index of Machine Tool New Orders

As reported by the National Machine Tool Builders' Assn.

(Monthly Average of 1945-1946-1947 = 100)

Month	1951	1950	1949	1948	1947	1946	1945
Jan.	475.4	99.7	87.0	83.1	71.7	115.6	208.9
Feb.	615.5	89.2	80.9	77.3	63.8	79.8	205.4
Mar.	590.3	107.4	93.5	86.3	74.3	106.3	181.8
Apr.	516.1	98.9	76.1	86.3	69.8	123.4	172.4
May	482.0	116.4	63.7	73.5	76.9	107.9	154.8
June	558.8	124.1	53.6	83.4	90.9	109.1	123.3
July	490.6	253.1	48.0	74.0	81.1	99.0	100.3
Aug.	488.9	305.1	51.5	73.7	62.1	99.9	103.1
Sept.	389.2	280.6	57.7	73.1	63.7	86.4	85.8
Oct.	463.9	289.6	56.8	67.4	81.0	85.3	99.5
Nov.	330.5	291.9	84.3	72.2	75.6	73.2	89.1
Dec.	416.8	440.1	82.5	76.7	81.1	72.7	119.4
Monthly Avg.	479.2	205.5	69.1	77.2	74.3	96.6	133.3

Index of Machine Tool Shipments

As reported by the National Machine Tool Builders' Assn.

(Monthly Average of 1945-1946-1947 = 100)

Month	1951	1950	1949	1948	1947	1946	1945
Jan.	114.3	52.8	68.8	75.3	91.7	105.9	130.0
Feb.	123.8	56.1	70.3	87.1	92.4	94.2	125.9
Mar.	158.9	75.3	75.8	83.6	100.4	95.2	140.4
Apr.	157.7	61.6	74.7	82.0	93.3	99.0	142.6
May	175.1	82.5	72.8	82.6	89.2	94.2	140.5
June	182.8	91.9	79.0	94.4	84.1	99.8	146.0
July	144.7	68.3	60.7	62.4	65.4	78.3	115.4
Aug.	178.9	95.7	67.3	69.8	63.6	92.5	113.1
Sept.	189.8	101.6	67.6	84.7	77.0	87.5	96.3
Oct.	221.3	100.9	62.3	80.4	94.8	99.9	109.5
Nov.	225.7	110.9	67.6	76.2	84.7	90.4	91.6
Dec.	253.9	135.7	75.7	96.9	98.4	95.2	81.7
Monthly Avg.	177.2	86.1	70.2	81.3	86.2	94.4	119.4

Machine Tool Shipments by Class of Products

As reported by the Industry Division, Bureau of the Census

Type of Machine Tool	1950 Number	1950 Value	1949 Number	1949 Value	1948 Number	1948 Value	1947 Number	1947 Value
Boring Machines	1,333	$28,849,000	1,212	$29,430,000	1,268	$24,098,000	1,444	$25,825,000
Broaching Machines	363	4,862,000	290	3,411,000	343	3,779,000	532	4,956,000
Drilling Machines	9,900	32,776,000	6,305	25,271,000	10,125	32,816,000	....	33,517,000
Gear-cutting and Finishing	1,498	19,819,000	1,095	14,231,000	1,367	16,407,000	1,682	17,719,000
Grinding and Polishing	79,146	60,557,000	64,257	45,660,000	98,792	47,294,000	....	56,364,000
Lathes	30,021	79,476,000	18,631	62,289,000	29,322	81,106,000	....	92,908,000
Milling Machines	5,486	35,827,000	4,397	31,400,000	6,064	34,914,000	7,504	35,278,000
Planers	84	3,035,000	99	3,699,000	157	4,828,000	152	4,018,000
Shapers (except gear)	770	3,362,000	666	2,831,000	1,369	5,826,000	1,787	6,880,000
All Other Machine Tools	....	34,490,000	....	23,148,000	....	26,453,000	....	44,891,000
Total	....	$303,053,000	....	$241,370,000	....	$277,521,000	....	$322,356,000

Machine Tool Shipments by States

(Industry Division, Bureau of the Census)

	1950 Value	1950 % of Total	1949 Value	1949 % of Total
New England				
Connecticut	$28,529,000	9.41	$21,256,000	8.81
Massachusetts	24,073,000	7.94	18,090,000	7.49
N. H., R. I., and Vt.	27,450,000	9.06	17,148,000	7.16
Total	$80,052,000	26.41	$56,494,000	23.46
Middle Atlantic				
New Jersey	3,220,000	1.06	3,118,000	1.29
New York	15,306,000	5.05	13,786,000	5.71
Pennsylvania	11,319,000	3.74	9,989,000	4.14
Total	$29,845,000	9.85	$26,893,000	11.14
East North Central				
Michigan	30,764,000	10.15	20,593,000	8.53
Ohio	94,272,000	31.11	81,842,000	33.91
Wisconsin	24,328,000	8.03	18,609,000	7.71
Ill. and Ind.	33,515,000	11.06	28,597,000	11.85
Total	$182,879,000	60.35	$149,641,000	62.00
West North Central				
Minnesota	3,655,000	1.21	1,804,000	.75
Missouri	1,820,000	.60	2,028,000	.84
Iowa, Kan., Neb., and S. D.	1,396,000	.46	1,189,000	.49
Total	6,871,000	2.27	$5,021,000	2.08
Pacific States	$1,144,000	.38	$915,000	.38
All Other States				
Ariz., Del., Ky., Md., Tenn., Tex.	2,262,000	.74	$2,406,000	1.00
U. S. Total	$303,053,000	100.00	$241,370,000	100.00

Metal Working Machinery (Except Machine Tools)

Shipments and Their Value F.O.B. Factory

(As Reported by the Industry Division, Bureau of the Census)

Class of Product	1950 Number	1950 Value	1947 Number	1947 Value
Presses (incl. Forging)	14,800	$76,378,000	N.A.	$109,163,000
Forging Machines (except Presses)	1,314	10,452,000		
Punching and Shearing Machines (Power)	3,556	13,841,000	4,307	12,552,000
Punching and Shearing Machines (Manual)	5,055	1,067,000	N.A.	N.A.
Bending and Forming Machines (Power)	6,670	19,668,000	N.A.	22,239,000
Bending and Forming Machines (Manual)	17,832	2,719,000		
Riveting Machines (except hand-held portable)	2,916	3,078,000	N.A.	3,346,000
Metal-container making Machines	2,134	12,571,000	2,546	16,278,000
Die-casting Machines	312	4,668,000	397	4,246,000
Wire-weaving and Fabricating Machines	781	3,224,000	N.A.	6,681,000
Drawing Machines and Draw Benches	374	3,962,000	N.A.	10,193,000
Total Metal Working Machinery		$151,628,000		*$184,698,000

N.A.—Not Available. *—Does not include value of punching and shearing machines (manual) data for which were not collated separately in 1947.

Small Cutting Tools for Machine Tools and Metalworking Machinery

Value of Shipments at Plant

As reported by the Industry Division, Bureau of the Census.

Type of Tool	1947
Broaches	$10,202,000
Drills	40,701,000
Reamers	15,125,000
Gear hobs	6,263,000
Gear cutters, other than hobbing	7,832,000
Milling cutters	28,822,000
Turning, planer, and shaper tools	19,582,000
Threading tools and dies	39,466,000
Drop-forging dies	4,502,000
Die-casting dies	8,366,000
Other small cutting tools	20,477,000
Small cutting tools, n.r.t.	2,895,000
Total—Small Cutting Tools—1947	$204,233,000
Total—Small Cutting Tools—1950	$232,399,000

Index of Machine Tool New Orders—For Foreign Use

Based on Monthly Average of 1945-46-47 = 100

As reported by National Machine Tool Builders Association

	1951	1950	1949	1948
Jan.	61.3	26.7	21.9	14.0
Feb.	78.2	18.8	26.5	12.7
Mar.	102.1	24.9	22.3	16.1
Apr.	66.1	17.4	23.1	14.1
May	35.7	18.4	15.8	11.4
June	58.4	23.0	15.7	11.9
July	54.9	22.3	14.0	13.3
Aug.	58.7	34.2	18.8	13.6
Sept.	27.0	27.2	13.7	11.6
Oct.	41.1	49.5	13.7	14.0
Nov.	29.0	26.6	17.0	18.1
Dec.	18.3	112.8	22.4	16.2
Avg.	52.4	33.5	18.7	13.9

Index of Machine Tool New Orders—For Domestic Use

Based on Monthly Average of 1945-46-47 = 100

As reported by National Machine Tool Builders Association

	1951	1950	1949	1948
Jan.	414.1	73.0	65.1	69.1
Feb.	537.3	70.4	54.4	64.6
Mar.	488.2	82.5	71.2	70.2
Apr.	450.0	81.5	47.0	72.2
May	447.3	98.0	47.9	62.1
June	502.4	101.1	37.9	71.5
July	435.7	230.8	34.0	60.7
Aug.	430.2	270.9	32.7	60.1
Sept.	353.2	253.4	44.0	61.5
Oct.	362.8	240.1	43.1	53.4
Nov.	301.5	265.3	67.3	54.1
Dec.	358.2	297.3	60.1	60.5
Avg.	423.4	172.0	50.4	63.3

Employment and Wages in Metalworking Machinery Plants

As reported by the Bureau of Labor Statistics

1951	Employment	Average Weekly Earnings	Average Hourly Earnings	Average Weekly Hrs. Worked
January	211,300	$81.31	$1.760	46.2
February	218,400	82.99	1.777	46.7
March	222,900	83.69	1.792	46.7
April	226,700	84.87	1.802	47.1
May	227,900	85.07	1.810	47.0
June	232,800	85.08	1.818	46.8
July	232,100	83.57	1.805	46.3
August	224,500	85.23	1.833	46.5
September	228,100	86.30	1.856	46.5
October	230,600	89.16	1.881	47.4
November		86.86	1.872	46.4
December		89.44	1.891	47.3
Average	225,530	$85.30	$1.825	46.7

MATERIALS HANDLING

Conveyors and Conveying Equipment

Except overhead traveling cranes and monorail systems

Industry Division, Bureau of the Census

Type	Quantity (Units)	Value f.o.b. Plant
Farm elevators, portable		
Single chain	18,782	$2,888,000
Double chain	18,032	5,931,000
Auger type	19,250	2,356,000
Farm elevators, stationary	1,301	602,000
Parts and attachments, and those not reported by type	....	4,363,000
Conveyors and conveying systems	....	142,573,000
Gravity conveyors (skate wheel and roller)	....	10,262,000
Power conveyors (excluding overhead trolley systems, pneumatic tube systems, and portable conveyors)	....	17,604,000
Overhead trolley conveyor systems	....	10,904,000
Pneumatic tube systems (incl. foot-power units)	....	2,200,000
Portable conveyors (except farm)	....	14,583,000
Other conveyors and conveying systems	....	87,020,000
Parts, attachments, and accessories sold separately	....	34,754,000
Conveyors and conveying equipment, not reported by type	....	3,364,000
Total—1947	....	$196,832,000
Total—1950	....	$172,180,000

Shipments of Industrial Electric Trucks and Tractors*

	1951	1950	1949	1948	1947
Jan.	440	199	204	316	320
Feb.	461	183	270	358	273
Mar.	595	229	247	338	329
Apr.	397	204	199	337	420
May	464	202	208	331	249
June	604	268	204	292	321
July	538	199	168	259	305
Aug.	591	237	202	275	365
Sept.	447	263	185	256	352
Oct.	587	290	254	239	375
Nov.	728	242	227	209	337
Dec.		291	232	237	394
Total	2,808	2,600	2,447	4,131	

* Industrial Truck Association. Data represent 75 to 80 per cent of industry.

Overhead Traveling Cranes and Monorail Systems

Industry Division, Bureau of the Census

Type	1947 Quantity (Units)	1947 Value f.o.b. Plant
Overhead traveling cranes:		
Electric	2,149	$27,987,000
Hand power	1,042	1,258,000
Monorail systems	....	7,997,000
Total—1947		$37,242,000
Total—1950		$60,819,000

Industrial Trucks, Tractors, Trailers & Portable Elevators

Industry Division, Bureau of the Census

Type	1947 Quantity (Units)	1947 Value f.o.b.Plant
Powered trucks, operator walking	7,469	$8,053,000
Powered trucks, operator riding	20,385	66,437,000
Fork trucks	17,943	56,970,000
Electric (storage battery and gasoline-electric powered)	3,522	15,212,000
Gasoline powered	14,421	41,758,000
Other trucks	2,442	9,467,000
Electric (storage battery and gasoline-electric powered)	1,300	5,667,000
Gasoline powered	1,142	3,800,000
Tractors	2,460	3,890,000
Electric (storage battery and gasoline-electric powered)	199	367,000
Gasoline powered	2,261	3,523,000
Portable elevators[1]	4,653	3,162,000
Hand truck and trailers		29,430,000
Hand lift		8,373,000
Other[2]		21,057,000
Parts, attachments, and miscellaneous equipment, sold separately[3]		41,572,000
Industrial trucks and tractors, not reported by type		4,210,000
Total—1947		$156,754,000
Total—1949		$151,573,000
Total—1950		$165,152,000

[1] Does not include farm elevators. [2] Includes two-wheel, four-wheel, dollies, and platform trucks. [3] Includes pallets and skids.

Shipments of Paper Product Shipping Containers

Industry Div., Bureau of the Census

Class of Product	Value at Plant 1947-1950
Shipping Sacks	
Single and Double Wall	$37,598,000
Multiwall	115,611,000
Total—1947	$153,209,000
Total—1950	$187,636,000
Shipping Containers	
Corrugated	$769,074,000
Solid Fibre	64,784,000
Total—1947	$833,858,000
Shipping Boxes	
Folding and Cartons	$401,447,000
Set-up	210,578,000
Total—1947	$612,025,000
Total—Containers and Boxes, 1947	$1,445,883,000
Total—Containers and Boxes, 1950	$1,599,777,000
Total—Sacks, Containers and Boxes—1947	$1,599,092,000
Total—Sacks, Containers and Boxes—1950	$1,787,413,000

Value of Shipments of Excavating and Earthmoving Equipment

Industry Division, Bureau of the Census

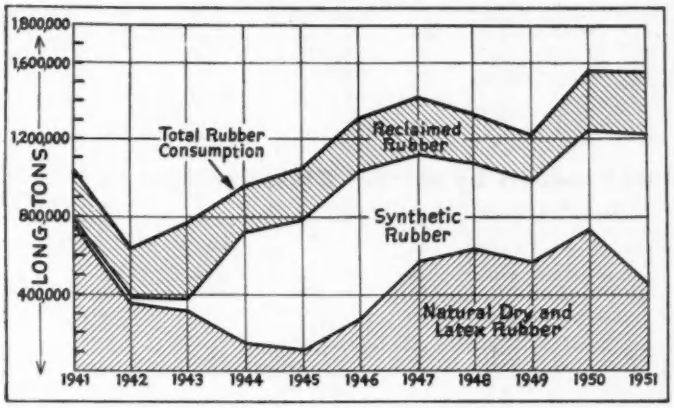
Class of Product	1951*	1950	1949	1948	1947
Power cranes and shovels	$130,728,000	$109,006,000	$89,204,000	$158,586,000	$132,836,000
Road construction and maintenance machinery	112,030,000	117,540,000	96,883,000	117,908,000	97,272,000
Construction machinery for mounting on tractors	47,646,000	58,769,000	38,177,000	44,645,000	40,722,000
Track laying tractors†	188,740,000	223,042,000	196,622,000	167,341,000	134,361,000
Wheel-type tractors (contractors off-highway type)†	37,171,000	24,769,000	12,499,000	13,962,000	15,791,000
Trucks, truck tractors, and trailers, off-highway type	24,943,000	22,856,000	N.A.	N.A.	N.A.
Portable well and blast hole drills	4,088,000	4,472,000	6,774,000	10,914,000	11,426,000
Other excavating and earth moving equipment	4,653,000	1,692,000	(1)	(1)	(1)
Total	$549,999,000	$314,335,000	$231,038,000	$332,053,000	$282,256,000

N.A.—Not available. (1)—Included in road construction and maintenance machinery for mounting on tractors.
*—First nine months. †—Also included in data for "Shipments of Farm and Non-Farm Tractors" found on page 96.

RUBBER

U. S. CONSUMPTION OF RUBBER

Natural, Synthetic and Reclaimed



Production, Consumption & Stocks of Synthetic Rubber

Long Tons

Year and Month	Production	Consumption	Stocks, end of month*
1941	8,388	6,259	1,702
1942	22,440	17,651	4,612
1943	231,720	170,891	20,825
1944	762,662	566,670	95,446
1945	820,368	693,580	198,889
1946	740,028	761,699	114,868
1947	508,704	559,666	62,366
1948	488,340	442,072	115,111
1949	393,696	414,381	98,042
1950	476,184	538,289	52,758
1951			
Jan.	60,952	58,584	55,453
Feb.	56,415	53,308	59,035
Mar.	65,286	65,587	60,614
Apr.	66,414	58,787	65,793
May	70,541	65,027	70,276
June	74,188	64,718	78,154
July	76,250	61,419	89,527
Aug.	74,951	67,260	96,382
Sept.	70,870	68,460	99,889
Oct.	79,285	68,923	109,407
Nov.	73,045	65,403	116,916
Dec.	76,958	60,902	132,499
Total	845,155	758,378	

* Or December 31 of each year.

U. S. Consumption of Natural, Synthetic and Reclaimed Rubber

(Rubber Division, National Production Authority)

All Data in Long Tons

Period	Dry Natural Rubber	Natural Rubber Latex	U. S. Synthetic Rubber: GR-S	Butyl	Neoprene	N-Type	S-Type	Total U.S. Synthetic	Imported Synthetic: S-Type	Imported Synthetic: Butyl	Uncured Scrap	Total Natural & Synthetic	Reclaimed	Grand Total
1941	741,900	33,100	.....	.....	4,463	1,688	108	6,259	.....	.....	.....	781,259	251,231	1,032,490
1942	367,399	9,392	1,015	22	6,833	8,217	1,564	17,651	.....	.....	.....	394,442	254,820	649,262
1943	308,056	9,578	131,188	304	26,205	12,405	789	170,891	.....	.....	.....	488,525	291,082	779,607
1944	138,028	6,085	494,115	10,763	46,243	14,112	1,437	566,670	.....	.....	.....	710,783	251,083	961,866
1945	101,543	3,886	598,434	43,012	42,394	8,029	1,711	693,580	.....	.....	.....	799,009	241,036	1,040,045
1946	271,883	5,714	631,405	79,228	44,357	5,988	721	761,699	.....	.....	.....	1,039,296	275,410	1,314,706
1947	544,752	13,909	446,316	68,838	37,703	4,536	2,273	559,666	.....	.....	.....	1,122,327	288,395	1,410,722
1948	598,843	28,489	334,233	54,856	32,118	5,771	3,640	430,618	7,440	4,014	.....	1,069,404	261,113	1,330,517
1949	538,405	36,117	299,420	50,855	31,753	8,837	6,284	397,139	15,423	1,809	.....	988,903	222,679	1,211,582
							1950							
Jan.	56,135	3,857	23,157	4,419	3,099	936	737	32,348	1,501	117	.....	93,958	20,016	114,064
Feb.	52,587	3,993	21,564	3,958	2,979	836	675	30,012	1,735	113	.....	88,440	19,741	108,181
Mar.	56,545	4,314	26,196	4,587	3,447	839	278	35,346	2,121	180	.....	98,506	22,151	120,657
Apr.	53,831	4,083	27,085	4,490	3,038	1,020	6	35,639	2,155	281	.....	95,989	21,318	117,307
May	59,373	4,440	33,541	5,238	3,561	1,457	79	43,866	1,953	579	.....	110,211	24,158	134,369
June	59,074	4,259	35,114	5,288	3,672	1,675	262	46,011	1,886	717	.....	111,941	25,253	137,194
July	57,532	3,870	31,514	4,779	3,046	1,436	576	41,351	1,750	586	.....	105,089	22,377	127,466
Aug.	59,382	4,915	36,731	5,507	4,031	1,269	412	47,950	1,882	547	.....	114,676	26,151	140,827
Sept.	56,424	4,857	36,483	5,640	3,791	949	405	47,268	1,696	586	.....	110,831	29,250	140,081
Oct.	63,646	5,532	40,462	6,047	4,232	1,143	766	52,741	1,254	512	.....	123,685	32,785	156,470
Nov.	46,537	4,803	35,232	5,628	3,811	919	894	46,484	1,392	385	.....	99,601	30,260	129,861
Dec.	39,483	5,516	39,472	5,711	3,980	1,184	1,228	51,576	1,415	373	.....	98,363	29,905	128,268
Total*	664,130	56,138	388,427	61,372	43,781	11,930	7,069	512,579	20,734	4,976	.....	1,258,557	303,733	1,562,290
							1951							
Jan.	39,346	5,240	46,188	6,002	4,120	1,142	574	58,027	1,152	404	404	104,574	32,455	137,029
Feb.	32,297	5,275	41,554	5,117	3,743	1,003	701	52,118	847	343	119	90,999	28,792	119,791
Mar.	29,648	5,687	53,058	5,709	4,517	1,090	3	64,377	916	294	3	100,925	32,678	133,603
Apr.	35,610	3,898	47,135	5,420	3,972	1,093	17	57,637	882	268	46	96,341	32,428	130,769
May	38,923	3,522	52,962	5,684	4,351	1,176	20	64,193	699	135	61	107,533	34,148	141,681
June	36,999	2,999	53,204	5,525	4,285	1,201	21	64,236	333	149	162	104,878	30,999	135,877
July	32,665	2,813	50,815	5,434	3,673	990	26	60,938	333	148	34	96,931	25,500	122,431
Aug.	33,271	3,255	55,009	6,208	4,332	1,118	25	66,692	514	54	167	103,933	28,598	132,531
Sept.	33,462	3,425	57,050	5,886	3,883	1,052	17	67,888	481	91	132	105,479	26,226	131,705
Oct.	33,563	3,844	56,978	5,827	4,274	1,174	19	68,272	505	146	126	106,456	27,744	134,200
Nov.	31,454	3,702	54,461	5,525	3,881	1,027	27	64,921	539	207	115	100,938	25,002	125,940
11 Mos.—1951	377,238	43,640	568,414	62,337	45,031	12,067	1,450	689,299	7,202	2,239	1,369	1,120,987	324,750	1,445,557
11 Mos.—1950	621,066	48,923	347,078	55,581	38,788	12,479	5,090	459,016	19,319	4,603	.....	1,152,927	273,550	1,426,477

* Some columns will not add to totals shown due to adjustments made to account for results of Annual Industry Reports.

STEEL

Annual Steel Production by Processes

As reported by the American Iron and Steel Institute.

	OPEN HEARTH		BESSEMER		ELECTRIC*		TOTAL	
	Net Tons	% of Total	Net Tons	% of Total	Net Tons	% of Total	Net Tons	% of Total
1951	93,147,479	88.60	4,891,115	4.65	7,094,830	6.75	105,133,424	100.00
1950	86,262,509	89.08	4,534,558	4.68	6,039,008	6.24	96,836,075	100.00
1949	70,248,803	90.09	3,946,656	5.06	3,782,717	4.85	77,978,176	100.00
1948	79,340,157	89.51	4,243,172	4.79	5,057,141	5.70	88,640,470	100.00
1947	76,873,793	90.55	4,232,543	4.99	3,787,735	4.46	84,894,071	100.00
1946	60,711,963	91.16	3,327,737	5.00	2,563,024	3.84	66,602,724	100.00
1945	71,939,602	90.26	4,305,318	5.40	3,456,728	4.34	79,701,648	100.00
1944	80,363,953	89.65	5,039,923	5.62	4,237,724	4.73	89,641,600	100.00
1943	78,621,804	88.50	5,625,492	6.33	4,589,216	5.17	88,836,512	100.00
1942	76,501,957	88.92	5,553,424	6.46	3,976,550	4.62	86,031,931	100.00

* Includes Crucible Steel.

Steel Ingot Production

In Net Tons, as reported by The American Iron & Steel Institute.

	1951		1950		1949	
Month	Production	% Cap.	Production	% Cap.	Production	% Cap.
Jan.	8,843,167	99.9	7,941,797	94.0	8,197,390	100.4
Feb.	7,765,701	97.1	6,803,032	89.2	7,493,942	101.6
Mar.	9,071,055	102.4	7,497,822	88.8	8,401,796	102.9
Apr.	8,840,521	103.1	8,224,504	100.6	7,796,165	98.6
May	9,094,499	102.7	8,564,207	101.4	7,598,990	93.0
June	8,656,960	100.9	8,143,230	99.6	6,504,656	82.2
July	8,679,247	98.2	8,082,922	94.8	5,784,831	71.0
Aug.	8,733,592	98.5	8,242,174	96.5	6,722,771	82.2
Sept.	8,654,897	101.0	8,204,997	99.4	6,597,935	83.6
Oct.	9,116,134	102.7	8,752,686	102.4	928,347	11.4
Nov.	8,794,000	103.0	8,023,393	97.0	4,223,129	53.4
Dec.	8,885,129	101.0	8,355,311	98.0	7,728,224	94.8
Total	105,134,902	100.9	96,836,075	96.9	77,978,176	81.1

Shipments of Steel Products by Market Classifications

All Grades including Carbon, Alloy, and Stainless

As reported by the American Iron and Steel Institute

Market Classifications	1951—11 Mos. Net Tons	1951—11 Mos. % of Total	1950 Net Tons	1950 % of Total	1949 Net Tons	1949 % of Total	1948 Net Tons	1948 % of Total
Automotive								
Vehicles and parts	11,521,888	15.89	8,339,668	11.54	6,537,690	11.25	5,824,085	8.84
Parts, accessories and supplies			5,583,871	7.73	4,101,250	7.06	3,933,414	5.96
Forgings	475,869	.66	549,168	.76	323,954	.56	463,483	.70
Tractors	645,049	.89	690,639	.96	563,695	.97	537,299	.81
Aircraft	138,097	.19	51,531	.07	41,096	.07	35,761	.05
Total—Automotive and Aircraft	12,780,903	17.63	15,214,877	21.06	11,567,685	19.91	10,794,042	16.36
Jobbers, Dealers and Distributors	13,152,118	18.14	13,359,724	18.50	10,219,983	17.59	11,405,749	17.29
Construction, incl. Maintenance	8,841,874	12.20	8,602,083	11.91	7,447,953	12.82	7,277,018	11.03
Containers	5,994,792	8.27	5,911,164	8.18	4,655,635	8.01	5,302,373	8.04
Rail Transportation	5,373,076	7.41	4,299,346	5.95	3,655,406	6.29	5,225,535	7.92
Steel for Converting and Processing	3,894,649	5.37	3,899,786	5.40	2,504,168	4.31	3,348,414	5.07
Machinery, Ind. Equip. & Tools (less tractors)	3,233,679	4.46	3,422,073	4.74	2,144,938	3.69	3,188,718	4.83
Contractors Products	2,823,784	3.90	3,075,195	4.26	2,124,806	3.66	2,507,977	3.80
Export	2,442,113	3.37	2,566,413	3.55	3,517,971	6.05	3,244,888	4.92
Appliances, Utensils and Cutlery	1,700,982	2.35	2,087,853	2.89	1,322,922	2.28	1,959,878	2.97
Electrical Machinery and Equipment	1,859,346	2.56	1,836,632	2.54	1,209,027	2.08	1,594,700	2.42
Other Domestic and Commercial Equip.	1,881,392	2.60	1,804,449	2.50	1,325,940	2.28	1,713,806	2.60
Agricultural	1,514,127	2.09	1,537,708	2.13	1,491,085	2.57	1,426,943	2.16
Bolts, Nuts, Rivets and Screws	1,467,119	2.02	1,410,011	1.95	874,594	1.51	1,284,653	1.95
Forgings (other than automotive)	1,412,749	1.95	1,082,309	1.50	821,570	1.41	938,838	1.42
Oil and Gas Drilling	767,366	1.06	620,444	.86	600,205	1.03	684,478	1.04
Mining, Quarrying and Lumbering	338,481	.47	289,302	.40	271,872	.47	329,090	.50
All Others	3,012,868	4.15	1,212,923	1.68	2,348,256	4.04	3,746,038	5.68
Total	72,491,418	100.00	72,232,292	100.00	58,104,010	100.00	65,973,138	100.00

1951 Distribution of Carbon, Alloy and Stainless Steel

As reported by the American Iron and Steel Institute

Consuming Industries	CARBON STEEL 1951—9 Months Net Tons	CARBON STEEL 1951—9 Months % of Total	ALLOY STEEL 1951—9 Months Net Tons	ALLOY STEEL 1951—9 Months % of Total	STAINLESS STEEL 1951—9 Months Net Tons	STAINLESS STEEL 1951—9 Months % of Total
Automotive						
Vehicles and parts (Assemblers)	4,553,065	8.39	695,263	16.19	23,975	6.01
Parts, accessories and supplies	3,576,903	6.59	548,409	12.77	41,005	10.28
Forgings	178,346	.33	208,908	4.87	56	.01
Tractors	453,815	.84	73,826	1.72	126	.03
Aircraft	41,932	.08	44,932	1.04	23,810	5.98
Total—Automotive and Aircraft	8,804,061	16.23	1,571,338	36.59	88,972	22.31
Jobbers, Dealers, and Distributors	10,227,351	18.86	305,890	7.12	88,709	22.25
Construction, incl. Maintenance	6,941,726	12.80	76,327	1.78	8,532	2.14
Containers	4,918,755	9.07	14,045	.33	2,128	.53
Rail Transportation	4,293,450	7.92	186,737	4.35	3,654	.92
Steel for Converting and Processing	3,101,104	5.72	66,542	1.55	32,829	8.23
Contractors Products	2,244,852	4.14	22,336	.52	10,612	2.66
Machinery, Ind. Equip. & Tools (less Tractors)	2,125,937	3.92	423,260	9.86	33,190	8.32
Export	1,851,523	3.41	73,459	1.72	6,013	1.51
Other Domestic and Commercial Equip.	1,524,503	2.81	20,159	.47	11,434	2.87
Appliances, Utensils and Cutlery	1,371,876	2.53	29,226	.68	36,721	9.21
Agricultural	1,214,080	2.24	37,419	.87	206	.05
Electrical Machinery and Equipment	1,112,792	2.05	403,411	9.39	13,079	3.28
Bolts, Nuts, Rivets, and Screws	1,096,684	2.02	78,780	1.83	5,010	1.26
Forgings (Other than Automotive)	603,034	1.11	509,900	11.87	11,062	2.77
Oil and Gas Drilling	503,853	.93	112,164	2.61	1,240	.31
Mining, Quarrying and Lumbering	254,807	.47	19,682	.46	504	.13
All Others	2,044,633	3.77	343,227	8.00	44,873	11.25
Total	54,235,021	100.00	4,293,902	100.00	398,768	100.00

Shipments of Steel Products

As reported by the American Iron and Steel Institute

Steel Products	1951—9 Mos. Net Tons	% of Total	1950 Net Tons	% of Total	1949 Tons Net	Total % of	1948 Tons Net	Total % of	1941 Tons Net	Total % of
Ingots	2,660,299	4.5	888,324	1.2	2,261,285	3.9	3,150,754	4.8	4,847,487	8.0
Blooms, slabs, billets, tube rounds, etc.			2,233,832	3.1						
Skelp	109,699	0.2	123,388	0.2	118,533	0.2	75,252	0.1	448,963	0.7
Wire Rods	624,427	1.1	816,555	1.1	570,397	1.0	610,348	0.9	1,247,629	2.0
Structural shapes (heavy)	3,650,549	6.2	4,197,653	5.8	3,669,503	6.3	4,255,355	6.5	4,586,652	7.5
Steel Piling	315,411	0.5	4,197,653	0.5	301,824	0.5	299,537	0.5	365,999	0.6
Plates	5,852,563	9.9	5,677,094	7.9	5,759,065	9.9	7,000,199	10.6	5,986,535	9.8
Rails—Standard (over 60 lb.)	1,278,749	2.2	1,705,243	2.4	1,772,734	3.0	1,976,520	3.0	1,708,464	2.8
Rails—All other	94,253	0.2	116,389	0.2	117,154	0.2	214,880	0.3	194,302	0.3
Joint Bars	100,113	0.2	113,676	0.2	118,559	0.2	137,139	0.2	675,735	1.1
Tie Plates	337,490	0.6	416,258	0.6	373,337	0.6	489,434	0.8		
Track Spikes	124,279	0.2	138,732	0.2	95,345	0.2	145,830	0.2	171,113	0.3
Wheels (rolled or forged)	296,856	0.5	268,662	0.4	285,733	0.5	337,376	0.5	268,165	0.4
Axles	167,698	0.3	130,601	0.2	159,628	0.3	215,905	0.3	201,553	0.3
Hot rolled bars (incl. light shapes)	6,605,975	11.2	8,017,465	11.1	6,416,102	11.0	8,123,753	12.3	7,405,401	12.2
Hot rolled bars—Reinforcing	1,413,521	2.4	1,674,079	2.3	1,572,588	2.7	1,541,966	2.3	1,892,351	3.1
Cold finished bars	1,431,257	2.4	1,624,845	2.2	1,213,052	2.1	1,593,967	2.4	1,442,163	2.4
Tool steel bars	129,611	0.2	89,863	0.1	57,396	0.1	88,376	0.1	153,953	0.3
Standard pipe	2,186,949	3.7	2,599,818	3.5	2,090,445	3.6				
Oil country goods	1,397,117	2.4	1,692,821	2.3	1,365,982	2.3				
Line pipe	2,182,827	3.7	3,668,511	5.1	2,534,423	4.4	6,881,549	10.4	5,674,878	9.4
Mechanical tubing	725,478	1.2	743,892	1.1	944,370	1.7				
Pressure tubing	228,684	0.4	248,798	0.3						
Wire—Drawn	2,425,232	4.1	2,867,476	4.0	2,138,878	3.7	2,673,276	4.1	2,284,511	3.7
Wire—Nails and staples	645,453	1.1	874,470	1.2	731,356	1.3	859,540	1.3	782,234	1.3
Wire—Barbed and twisted	168,249	0.3	237,604	0.3	215,047	0.4	254,629	0.4	279,780	0.5
Wire—Woven wire fence	318,050	0.5	483,920	0.7	358,162	0.6	399,457	0.6	296,506	0.5
Wire—Bale ties	81,074	0.1	83,831	0.1	42,828	0.1	113,892	0.2	81,554	0.1
All other wire products	.....	...	.....	...	.....	...	.....	...	39,118	0.0
Fence posts	.....	...	.....	...	.....	...	.....	...	67,553	0.1
Black plate	740,142	1.3	562,077	0.8	452,041	0.8	838,666	1.3	474,258	0.8
Tin and terne plate—Hot dipped	1,270,145	2.2	1,911,568	2.7	1,699,355	2.9	2,167,912	3.3	3,565,885	5.9
Tin plate—Electrolytic	2,145,843	3.6	2,840,599	3.9	1,993,468	3.4	1,784,288	2.7		
Sheets—Hot rolled	6,235,514	10.6	7,804,948	10.8	6,192,610	10.7	7,786,056	11.8	8,006,944	13.1
Sheets—Cold rolled	7,300,271	12.4	9,338,312	12.9	6,886,946	11.8	6,867,775	10.4	3,024,960	5.0
Sheets—Galvanized	1,536,294	2.6	2,262,041	3.1	1,755,067	3.0	1,643,337	2.5	1,621,635	2.7
Sheets—All other coated	197,406	0.3	237,941	0.3	151,118	0.3	.....	...	.....	...
Sheets—Enameling	144,596	0.2	256,766	0.4	162,815	0.3	.....	...	.....	...
Electrical sheets and strip	579,511	1.0	716,592	1.0	379,180	0.6	.....	...	.....	...
Strip—Hot rolled	1,643,335	2.8	2,330,783	3.2	1,674,818	2.9	1,662,787	2.5	1,768,224	2.9
Strip—Cold rolled	1,572,971	2.7	1,894,588	2.6	1,465,297	2.5	1,783,383	2.7	1,322,066	2.2
All other	.....	..	.....	...	7,570	0.0	.....	..	56,408	0.0
Total steel products	58,927,691	100.0	72,232,292	100.0	58,104,010	100.0	65,973,138	100.0	60,942,979	100.0

Automotive Industries' Purchases of Iron Castings

(As Reported by the Industry Division, Bureau of the Census)

Consuming Industry	Purchases and Interplant Transfers 1950 Tons	1950 Value	1949 Tons	1949 Value	1947 Tons	1947 Value
Internal Combustion Engines	188,976	$54,544,000	169,334	$49,079,000	221,898	$60,226,000
Tractors	297,471	65,069,000	336,255	74,231,000	365,494	66,097,000
Motor Vehicles and Equipment	2,781,339	595,135,000	1,785,551	316,195,000	1,469,169	293,694,000
Total—Automotive Industries	3,267,786	$714,748,000	2,291,140	$439,505,000	2,056,561	$420,011,000
Total—Metal Fabricating Industries	5,144,177	$1,200,999,000	3,964,246	$845,256,000	4,223,077	$894,403,000
% Consumed by Automotive Industries	63.52%	59.51%	57.80%	52.00%	48.70%	46.96%

Automotive and Aviation Industries' Purchases of Alloy and Stainless Steel Mill Shapes and Castings

(As Reported by the Industry Division, Bureau of the Census)

Consuming Industry	Purchases and Interplant Transfers 1950 Tons	1950 Value	1949 Tons	1949 Value	1947 Tons	1947 Value
Internal Combustion Engines	18,203	$6,570,000	11,587	$5,201,000	7,382	$1,991,000
Tractors	106,174	79,759,000	79,759	10,475,000	64,304	6,940,000
Motor Vehicles and Equipment	1 081,370	167,052,000	716,813	108,491,000	622,874	74,213,000
Aircraft and Parts						
Aircraft	.....	.....	8,338	6,566,000	5,931	4,702,000
Aircraft Engines	.....	.....	24,297	22,583,000	15,441	10,358,000
Aircraft Equipment	.....	.....	8,829	4,532,000	2,645	1,053,000
Total	53,716	$46,495,000	41,464	$33,681,000	24,017	$16,118,000
Total—Automotive and Aviation Industries	1,239,463	$299,976,000	849,623	$157,848,000	718,577	$99,262,000
Total—Metal Fabricating Establishments	3,809,877	$976,395,000	2,789,855	$649,490,000	2,670,257	$479,405,000
% Consumed by Automotive and Aviation Plants	32.53%	30.72%	30.45%	24.30%	26.91%	20.71%

Automotive and Aviation Industries' Purchases of Carbon Steel Mill Shapes and Forms

(As Reported by the Industry Division, Bureau of the Census)

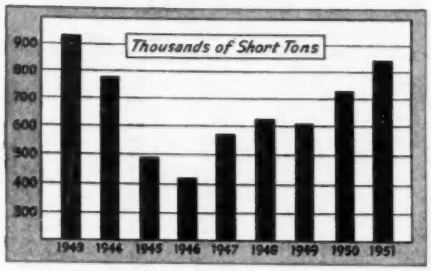
Consuming Industry	Purchases and Interplant Transfers — 1950 Tons	1950 Value	1949 Tons	1949 Value	1947 Tons	1947 Value
Internal Combustion Engines	117,433	$18,201,000	72,032	$11,913,000	80,980	$12,011,000
Tractors	695,270	76,499,000	710,799	69,920,000	561,496	54,355,000
Motor Vehicles and Equipment						
Motor Vehicles and Parts	10,000,704	1,074,974,000	7,820,322	758,946,000	5,813,813	514,342,000
Truck and Bus Bodies	153,014	17,353,000	125,197	13,115,000	210,744	18,821,000
Truck Trailers	153,681	20,479,000	90,963	10,796,000	90,428	10,202,000
Automobile Trailers	.....	.....	9,377	1,148,000	6,163	$11,000
Total	10,319,045	$1,114,753,000	8,045,861	$784,005,000	6,121,148	$544,176,000
Aircraft and Parts						
Aircraft	.....	.....	17,966	3,773,000	12,189	1,644,000
Aircraft Engines	.....	.....	19,524	2,998,000	7,809	1,321,000
Aircraft Equipment	.....	.....	13,789	2,665,000	2,936	521,000
Total	72,474	16,307,000	51,279	$9,436,000	22,934	$3,486,000
Motorcycles and Bicycles	.....	.....	69,464	$7,671,000	110,701	$12,044,000
Total—Automotive Industries	11,204,222	$1,225,760,000	8,949,435	$882,945,000	6,897,259	$626,072,000
Total—Metal Fabricating Establishments	42,996,144	$5,274,525,000	36,431,195	$4,001,075,000	36,411,380	$3,458,504,000
Per Cent Consumed by Automotive Industries	26.06%	23.24%	24.57%	22.07%	18.94%	18.10%

Present and Alternate SAE Steels

From a paper by H. B. Knowlton, Chairman S.A.E. Iron and Steel Technical Committee's. Div. VIII

Applications	PRESENT STEELS SAE No.	Min. Jominy Hardenability Rock. C at 4-16ths H	4-16ths Calc	6-16ths H	6-16ths Calc	8-16ths H	8-16ths Calc	10-16ths H	10-16ths Calc	ALTERNATE STEELS SAE No.	Min. Jominy Hardenability Rock. C at 4-16ths H or Obs	4-16ths Calc	6-16ths H or Obs	6-16ths Calc	8-16ths H or Obs	8-16ths Calc	10-16ths H or Obs	10-16ths Calc
Heavy coil and leaf springs	8655	58	56	56	48	54	42	49	38	IH50B60	61	58	59	50	45	44	37	40
	8660	60	59	59	52	57	44	53	41	51B60	—	62	—	56	—	50	—	46
	9262	60	59	56	52	48	45	39	41	80B60	—	60	—	51	—	46	—	42
Medium coil and leaf springs	4068	59	46	45	37	36	29	34	27	5160	59	54	56	47	47	40	39	36
	8650	57	55	54	46	50	41	44	37	80B50	—	55	—	47	—	42	—	37
	9260	53	48	41	39	36	32	35	28	80B55	—	58	—	52	—	45	—	41
	9621	59	54	52	44	42	39	37	35	81B50	—	57	—	52	—	45	—	41
Axles, shafts, gears and clutch plates	4150	58	59	57	55	56	48	55	44	81B45	—	53	—	45	—	41	—	37
										81B50	—	57	—	42	—	45	—	41
	4145	54	55	53	50	52	43	50	39	5150	56	50	49	41	38	35	34	32
	8645	54	51	50	43	45	37	39	34	IH50B44	—	53	—	45	—	40	—	37
	8650	57	55	54	46	50	41	44	37	IH50B50	—	55	—	47	—	42	—	37
	8745	54	53	52	47	47	40	43	37	80B45	—	53	—	45	—	40	—	37
	8750	57	57	56	51	53	44	49	40	80B45	—	55	—	47	—	42	—	37
	4340	52	54	52	52	52	47	52	42	81B45	—	53	—	45	—	41	—	37
										T86B45	54	57	53.5	54	53	51	52	47
Axle. size parts—Steering arms, knuckles, axle shafts, propeller shafts	3140	49	47	45	39	41	34	36	30	50B44	—	53	—	45	—	40	—	37
	4053	53	39	38	28	32	21	30	18	5140	48	42	38	35	33	29	30	26
	4063	56	45	39	35	35	29	33	26	80B45	—	53	—	45	—	40	—	37
	4140	51	51	50	46	47	40	42	36	81B40	51	50	49	44	45	38	38	34
	4640	50	41	44	32	37	27	32	23	94B30	—	45	—	40	—	34	—	32
	8640	51	47	46	40	39	34	34	31									
	8740	51	49	46	43	40	37	35	33									
Connecting rods, steering arms, knuckles	3135	47	41	41	33	35	28	31	25	50B40		49		41		36		32
	8635	45	44	39	37	33	31	30	28	5135	43	38	35	31	30	25	27	22
	8735	48	47	41	40	35	34	31	31	80B40	52	46	46	39	31	33	27	30
										81B35		47		41		36		32
Bolts and studs up to ½" (oil quenched)	4037	35	27	26	20	22	17	20	—	14B35	24	27	20	20	—	—	—	—
	4042	40	30	29	23	26	19	24	—	40B37 mod.	—	38	—	30	—	24	—	21
										5035	—	22	—	18	—	16	—	—
										50B40	—	49	—	41	—	36	—	32
										8035	—	23	—	18	—	16	—	—
										8135	—	35	—	28	—	23	—	20
Bolts and studs over ½", up to ¾" (oil quenched)	8637	48	45	42	38	36	32	32	29	50B37	—	39	—	31	—	26	—	28
	8640	51	47	46	40	39	34	34	31	50B40	—	49	—	41	—	36	—	32
										80B30	—	37	—	30	—	25	—	22
										80B37	—	45	—	38	—	33	—	29
										8137	—	35	—	28	—	23	—	20
Bolts and studs over ¾" up to 1¼"	8640	51	47	46	40	39	34	34	31	50B44	—	53	—	45	—	40	—	37
										81B40	51	50	49	43	45	38	38	35
Carburized heavy duty truck transmission and rear axle gears	25XX	—	—	—	—	—	—	—	—	43BXX	—	64	—	61	—	56	—	52
	33XX	—	65	—	65	—	65	—	65	46BXX	—	55	—	46	—	38	—	34
	43XX	—	63	—	59	—	55	—	51	T86XX	—	63	—	57	—	51	—	47
	48XX	—	63	—	57	—	52	—	47	86BXX	—	63	—	58	—	53	—	48
	93XX	—	65	—	65	—	65	—	65	—	—	—	—	—	—	—	—	—
Carburized truck, tractor, and passenger car transmission and rear axle gears	23XX	—	56	—	47	—	40	—	36	41XX	—	59	—	52	—	45	—	40
	46XX	—	55	—	46	—	38	—	34	50BXX	—	55	—	46	—	38	—	33
	86XX	—	63	—	57	—	51	—	47	51XX	—	60	—	52	—	45	—	41
	87XX	—	63	—	57	—	51	—	47	80BXX	—	50	—	41	—	34	—	30
										T81XX	—	58	—	50	—	43	—	38
										94BXX	—	59	—	52	—	45	—	40
	40XX	—	49	—	45	—	33	—	29	1024	—	48	—	38	—	32	—	28
	41XX	—	59	—	52	—	45	—	40	13XX	—	56	—	48	—	41	—	37
										50XX	—	55	—	46	—	39	—	34
										14BXX	—	32	—	25	—	22	—	19

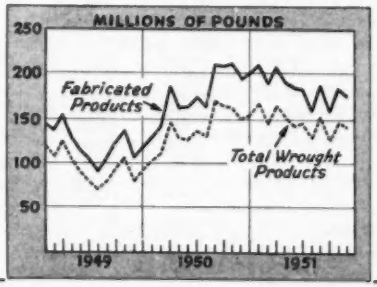
REFINED ALUMINUM PRODUCTION



Shipments of Aluminum Fabricated Products

Millions of Pounds

	Total	Castings	Wrought Products Total	Wrought Products Plate, Sheet and Strip
1946	1,530.0	388.8	1,141.2	866.4
1947	1,850.4	441.6	1,407.6	1,112.4
1948	2,065.2	424.8	1,640.4	1,268.4
1949	1,462.8	304.8	1,158.0	789.6
		1950		
Jan.	129.5	28.8	100.7	68.5
Feb.	140.2	28.9	111.3	77.0
Mar.	184.9	35.8	149.0	107.4
Apr.	162.7	33.4	129.4	89.4
May	163.6	36.0	127.5	85.7
June	175.1	37.6	137.5	92.7
July	163.8	30.2	133.6	90.3
Aug.	208.9	39.9	169.1	113.0
Sept.	207.4	42.1	165.3	110.2
Oct.	210.1	47.3	162.8	106.8
Nov.	197.2	46.8	150.4	99.7
Dec.	199.0	46.0	153.0	101.6
Total	2,142.4	452.8	1,689.6	1,142.3
		1951		
Jan.	210.3	42.5	167.8	113.1
Feb.	190.5	40.8	149.7	95.6
Mar.	206.6	42.2	164.4	101.0
Apr.	192.2	40.2	152.0	94.7
May	185.5	40.5	145.0	91.8
June	182.3	36.0	146.4	88.6
July	159.8	27.4	132.4	82.7
Aug.	187.6	35.5	152.0	91.5
Sept.	161.7	32.5	129.2	77.5
Oct.	179.4	35.2	144.1	82.5
Nov.	171.5	32.4	139.2	78.8
Dec.	...	...	134.3	75.5
Total	2,027.4	405.2	1,756.5	1,073.3



U. S. Primary Aluminum Production

In Short Tons as reported by U. S. Bureau of Mines

Month	1951	1950	1949	1948	1947	1946	1945
Jan.	67,954	52,023	53,356	48,767	50,045	24,750	48,650
Feb.	62,740	50,443	49,749	45,699	47,002	22,250	45,650
Mar.	70,022	58,747	54,852	51,874	53,032	26,000	53,100
Apr.	67,701	58,024	54,076	53,277	51,007	25,900	51,600
May	67,721	61,929	56,909	55,450	51,116	24,850	52,000
June	67,454	60,400	54,184	48,557	46,259	27,800	47,500
July	73,698	63,518	55,777	52,937	47,998	35,750	47,900
Aug.	73,816	63,006	52,001	54,953	47,054	39,850	45,800
Sept.	69,429	59,449	49,742	53,255	43,228	41,100	31,600
Oct.	72,647	62,915	45,790	54,526	43,959	45,000	25,000
Nov.	72,246	62,276	35,865	50,714	43,461	46,300	20,800
Dec.	72,454	65,897	41,161	53,447	47,589	50,700	24,000
Total	836,882	718,627	603,462	623,456	571,750	410,250	495,600

Monthly totals vary slightly from yearly totals due to slight adjustments.

Bauxite Imports for Consumption

In Long Tons as reported by Bureau of the Census

Month	1951	1950	1949	1948	1947	1946	1945
Jan.	236,515	232,796	171,918	217,602	108,795	66,794	48,701
Feb.	228,436	142,324	175,704	153,706	166,616	38,322	49,827
Mar.	222,030	253,181	254,512	217,907	157,337	52,329	58,017
Apr.	223,503	248,354	180,765	166,961	129,133	55,598	65,182
May	180,141	225,388	182,760	244,852	189,615	75,844	52,942
June	272,903	167,154	262,247	192,524	173,706	65,356	104,515
July	284,318	182,954	182,171	157,183	181,199	77,110	77,566
Aug.	251,283	207,852	276,727	260,796	164,098	88,606	106,260
Sept.	210,667	213,408	245,978	200,113	163,480	95,038	42,444
Oct.	275,407	149,449	252,431	231,097	118,658	29,811	54,947
Nov.	229,563	203,639	243,748	227,583	134,148	93,752	40,967
Dec.	...	250,187	259,203	218,591	133,995	113,445	38,218
Total	2,920,260*	2,476,686	2,688,164	2,488,915	1,820,780	852,005	739,581

* Estimated.

Copper Production, Deliveries and Stocks

As Reported by the Copper Institute

	Short Tons Production Mine	Crude	Refined	Deliveries to Customers	Stocks, Dec. 31
1941	958,152	1,017,000	1,065,672	1,545,540	84,967
1942	1,080,060	1,152,348	1,135,704	1,625,240	69,801
1943	1,090,824	1,199,496	1,206,876	1,643,676	54,907
1944	972,552	1,056,180	1,098,792	1,636,296	46,843
1945	772,896	841,668	843,108	1,517,844	67,396
1946	608,736	651,264	604,068	1,260,924	82,925
1947	847,563	976,704	1,196,388	1,383,672	76,035
1948	834,816	980,496	1,233,696	1,344,444	96,080
1949	752,748	908,040	1,056,468	1,031,592	116,027
		1950			
Jan.	70,915	85,650	95,229	111,668	101,070
Feb.	66,841	80,756	94,036	112,773	77,472
Mar.	75,698	90,358	113,464	123,054	60,276
Apr.	73,303	83,782	103,293	101,729	57,028
May	74,467	83,286	112,411	113,837	51,043
June	74,828	96,754	113,961	125,016	50,350
July	72,582	85,378	96,758	96,006	48,290
Aug.	80,222	93,138	108,465	112,107	50,952
Sept.	76,666	86,678	111,842	119,529	58,748
Oct.	77,800	90,542	110,435	121,806	56,945
Nov.	81,957	90,148	101,410	111,955	51,805
Dec.	81,712	91,218	109,464	121,954	49,040
Total	906,991	1,057,688	1,270,768	1,371,464	.....
		1951			
Jan.	80,426	86,961	110,144	108,128	54,883
Feb.	73,084	81,598	101,054	99,485	59,324
Mar.	83,171	91,243	112,933	116,793	55,609
Apr.	82,459	90,794	103,494	114,744	52,800
May	83,779	96,541	113,513	118,113	60,896
June	75,847	87,103	105,127	114,103	60,912
July	75,407	82,577	93,258	101,095	68,045
Aug.	67,939	73,324	79,613	104,938	70,937
Sept.	68,989	74,165	74,354	121,879	62,093
Oct.	51,614	87,896	104,148	125,286	78,192
Nov.	77,294	82,617	103,614	123,646	68,160
Dec.	79,167	86,067	98,532	119,577	71,528
Total	928,576	1,020,886	1,199,784	1,367,787	.....

Automotive and Aviation Industries' Purchases of Aluminum Mill Shapes and Castings

(As Reported by the Industry Division, Bureau of the Census)

Consuming Industry	Purchases and Interplant Transfers 1950 Tons	1950 Value	1949 Tons	1949 Value	1947 Tons	1947 Value
Internal Combustion Engines	18,529	$18,388,000	7,957	$8,435,000	6,757	$7,199,000
Tractors	1,753	1,818,000	2,403	2,425,000	2,150	1,764,000
Motor Vehicles and Equipment	117,061	105,649,000	47,782	38,462,000	54,102	38,304,000
Aircraft and Parts	59,884	69,990,000	40,098	47,999,000	33,936	32,109,000
Total—Automotive and Aviation Industries	197,227	$195,845,000	98,241	$97,321,000	96,945	$81,376,000
Total—All Metal Fabricating Establishments	682,677	$556,772,000	435,017	$323,525,000	461,001	$303,064,000
% Consumed by Automotive and Aviation Plants	28.89%	35.18%	22.58%	30.08%	21.02%	26.85%

Tin Production, Consumption, Stocks

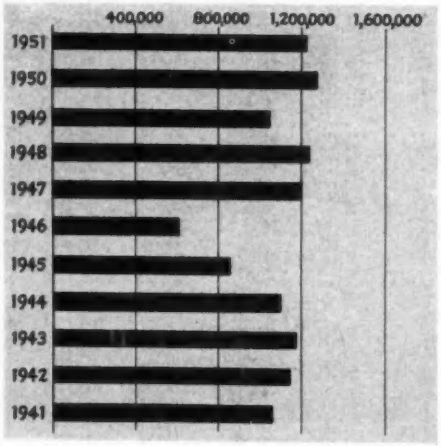
As Reported by the U. S. Department of Commerce

(Long Tons)

Period	Production, Pig	Consumption, Pig	Stocks, Pig, end of month: Total	Stocks, Pig, end of month: Government	Stocks, Pig, end of month: Industrial	Imports: Ore	Imports: Pigs, Bars, Blocks
1946	46,068	58,188	38,074	23,071	15,003	38,076	15,564
1947	36,453	63,643	38,993	24,555	14,438	30,496	24,898
1948	39,932	64,867	39,314	24,322	14,992	37,492	49,196
1949	39,366	51,262	22,452	13,325	1,793	38,311	60,224
1950							
Jan.	2,987	4,941	39,827	25,991	13,145	2,549	7,409
Feb.	2,652	5,131	43,875	25,816	17,104	1,383	8,184
Mar.	3,137	5,799	43,890	23,396	19,673	1,755	4,940
Apr.	2,743	5,488	42,270	23,488	18,427	1,392	2,941
May	3,185	6,120	43,417	23,482	19,230	374	10,434
June	2,695	6,478	42,644	20,623	20,117	472	8,613
July	2,574	6,571	42,512	18,254	22,780	658	11,621
Aug.	2,717	8,157	43,717	19,623	21,910	4,266	8,254
Sept.	3,130	7,092	41,442	17,804	22,587	3,882	5,136
Oct.	3,653	7,059	42,020	17,486	23,666	3,130	6,357
Nov.	3,529	6,678	42,697	18,554	22,931	1,685	5,008
Dec.	3,383	6,799	40,995	18,618	21,931	3,789	4,019
Total	36,295	76,313	...	...	...	25,336	82,916
1951							
Jan.	3,566	6,456	38,840	17,786	20,728	4,545	5,836
Feb.	3,423	4,976	37,933	17,753	19,352	2,927	2,263
Mar.	3,491	5,152	38,159	18,151	19,676	2,753	4,225
Apr.	3,395	4,984	36,232	17,753	18,244	2,204	2,273
May	3,420	5,295	35,446	19,906	15,435	1,324	1,213
June	2,994	5,093	32,091	18,105	13,917	2,924	1,868
July	2,701	4,719	31,855	18,944	12,749	2,663	2,321
Aug.	2,797	5,175	28,393	16,091	12,236	2,430	1,172
Sept.	2,414	4,947	27,614	15,789	11,790	591	1,865
Oct.	2,353	5,014	24,242	12,629	11,508	4,545	1,969
Nov.	.....	.....	...	10,454	...	654	1,188
Dec.	.....	.....	...	...	...	...	...
Total	...	...	...	...	...	...	...

REFINED COPPER PRODUCTION

In Millions of Pounds



Refined Lead

As reported by American Bureau of Metal Statistics

(Short Tons)

Period	Production	Shipments	Stocks, end of month	Imports
1946	396,684	393,900	47,587	136,920
1947	541,068	566,664	21,328	225,972
1948	511,356	490,632	38,644	331,380
1949	542,676	355,908	70,424	415,232
1950				
Jan.	47,512	25,683	76,529	31,286
Feb.	41,670	21,855	79,143	33,924
Mar.	49,104	22,358	88,581	26,197
Apr.	48,196	33,751	86,309	32,787
May	48,989	45,792	76,236	54,917
June	44,490	35,774	69,025	41,523
July	41,520	41,188	67,809	35,646
Aug.	47,242	47,031	67,495	50,412
Sept.	49,958	55,898	61,042	41,831
Oct.	54,123	62,138	50,854	43,810
Nov.	50,725	58,658	40,910	61,002
Dec.	48,234	49,601	35,619	114,696
Total	571,763	499,637	.....	568,031
1951				
Jan.	48,878	51,260	33,232	31,526
Feb.	43,675	49,128	27,775	12,898
Mar.	50,701	50,927	27,259	14,916
Apr.	44,362	42,933	29,437	21,628
May	44,951	40,963	33,420	11,201
June	39,952	40,041	33,308	18,397
July	44,864	44,404	33,504	11,527
Aug.	31,756	40,252	24,997	26,950
Sept.	30,474	31,654	23,640	13,658
Oct.	34,273	31,164	26,742	20,707
Nov.	36,234	37,084	25,871	20,009
Dec.	36,754	37,274	25,339	.....
Total	486,874	496,184	.....	254,000

Slab Zinc

As reported by American Zinc Institute

(Short Tons)

Period	Production	Shipments: Total	Shipments: Domestic	Stocks, end of month
1946	759,348	842,928	714,288	235,046
1947	848,027	955,816	698,281	88,011
1948	850,105	897,904	770,396	20,848
1949	870,113	796,740	648,285	94,221
1950				
Jan.	69,948	82,132	69,020	82,037
Feb.	69,639	84,257	72,843	67,419
Mar.	77,946	85,589	74,700	59,776
Apr.	75,877	83,133	73,389	52,520
May	79,645	90,346	71,101	41,819
June	75,766	90,920	68,214	26,665
July	77,868	84,116	67,119	20,417
Aug.	73,399	79,365	69,073	14,451
Sept.	71,057	75,241	70,656	10,267
Oct.	79,997	81,156	71,596	9,108
Nov.	79,226	79,079	69,202	9,255
Dec.	79,986	80,357	72,333	8,884
Total	910,354	995,651	849,246	.....
1951				
Jan.	80,937	79,609	72,068	10,212
Feb.	70,285	69,380	64,784	11,117
Mar.	80,450	80,462	70,845	11,105
Apr.	77,862	74,419	69,125	14,548
May	80,430	77,567	73,093	17,411
June	77,679	79,299	74,149	15,791
July	78,955	83,346	76,461	11,400
Aug.	74,035	74,191	65,696	11,244
Sept.	70,623	64,632	58,074	17,235
Oct.	79,432	73,583	68,002	23,084
Nov.	79,376	77,419	70,084	25,041
Dec.	81,769	84,909	72,814	21,901
Total	931,833	918,816	835,195	.....

Copper Exports

Refined and Manufactured

In Short Tons as Reported by Bureau of the Census

	1951	1950	1949	1948	1947	1946
Jan.	8,729	12,165	21,041	18,013	14,921	12,427
Feb.	16,027	20,748	10,653	18,297	11,068	10,966
Mar.	14,457	19,021	15,415	15,043	13,467	7,336
Apr.	17,652	17,120	11,248	23,272	11,721	6,267
May	14,041	14,064	14,910	19,861	14,021	4,225
June	13,162	11,434	17,066	21,079	17,254	7,341
July	13,535	9,785	10,349	15,069	14,569	7,489
Aug.	6,714	12,230	8,695	20,623	21,606	9,173
Sept.	4,971	12,035	14,214	12,085	18,337	5,386
Oct.	9,864	11,925	9,388	18,316	19,295	2,131
Nov.	16,488	12,226	13,075	11,636	22,497	10,564
Dec.	.....	20,905	25,049	13,725	18,299	14,168
Total	154,000	173,658	171,103	207,019	197,055	97,473

Copper Imports

Unrefined, Scrap and Refined

In Short Tons as Reported by Bureau of the Census

	1951	1950	1949	1948	1947	1946
Jan.	45,831	56,213	48,329	30,435	25,696	60,026
Feb.	44,850	61,378	59,160	46,638	26,114	15,583
Mar.	36,062	45,207	64,374	46,981	26,291	8,193
Apr.	43,812	34,520	48,405	37,727	23,203	25,666
May	46,771	66,117	46,548	33,271	40,138	31,193
June	48,624	87,222	46,570	46,840	52,526	20,510
July	46,606	29,347	33,829	46,684	37,524	35,755
Aug.	58,969	33,576	45,372	39,736	44,185	21,272
Sept.	46,566	36,298	38,176	35,423	41,596	25,182
Oct.	41,780	62,526	37,231	36,947	44,045	32,503
Nov.	39,694	38,823	41,786	35,491	36,902	33,182
Dec.	.....	54,807	59,054	52,222	54,513	45,431
Total	550,000	606,034	568,834	488,395	452,733	354,496

Controls . . . Inflation . . . and Collapse!

By Irving S. Olds
Chairman, Board of Directors
United States Steel Corp.

THERE is in this country a quaint, but widely-entertained belief, that price controls can stop inflation. It is argued that if the Government will only hold the lid on prices, then nothing else will matter. The Government can go merrily on its way, inflating the currency; and the unions can keep on demanding and getting higher and higher wages for less and less work, but as long as prices are frozen, the cost of living will remain the same and everybody will be happy and rich.

I sincerely wish that that were true; but it isn't. The whole recorded history of man is strewn with the wreckage of the great civilizations which have crumbled under price controls; and in forty centuries of human experience there has never been—so far as I can discover—a single case where such controls have stopped, or even curbed for long, the forces of inflation. On the contrary, in every instance I can find, they have discouraged production, created shortages, and aggravated the very evils they were intended to cure.

Yet the controls under which we are laboring in America today do not differ materially and fundamentally from those which have been tried and discarded in virtually every great nation of the world.

Hammurabi Code

About 4000 years ago, the Hammurabi Code imposed a rigid system of controls over wages, prices, production and consumption. Those controls blanketed the entire economy of Babylonia. In fact, they smothered it completely.

In Athens, during the fourth century, B.C., the Government subjected the grain trade to an ironclad system of price controls and it sent a small army of grain inspectors into the port to regulate every transaction. If, under the watchful eyes of these goverment agents, a dealer succeeded in violating the ceiling price and was later caught, both he and the negligent inspector were put to death. But nothing did any good; and ultimately the system collapsed—possibly due to an incurable shortage of grain inspectors.

Among the most elaborate and disastrous attempts at price control, of course, was the famous Edict of Diocletian which was promulgated in the Year of Our Lord 301, and which impoverished the whole Roman Empire.

That Edict was full of such trenchant words and phrases as "avarice," "extortion," and "lust of plunder." It spoke of "keeping profits within bounds" and it denounced merchants who—possessing "immense fortunes"—sought "private gain" and "ruinous percentages." Does that language have a familiar ring to the modern ear? Well, so did the regulations themselves.

The Emperor put an absolute maximum price on almost every individual item that was sold in Rome in those days; and he fixed the exact wage of every individual worker in every trade and profession—including even the lawyers. Then, in accordance with the custom of his day, he prescribed the death penalty for all offenders.

Controls Dethrone Diocletian

What happened after that is known to you all. Dealers, refusing to sell at a lower price than they had paid, simply hid their commodities under the counter. Producers no longer brought their wares to market. People in the cities suffered dire want, and brawls and riots filled the streets. And so another noble experiment collapsed while Diocletian himself abandoned his throne and spent the rest of his days in a cabbage patch, there to brood upon the consequences of folly and the waywardness of man.

But experience, it seems, can teach us nothing.

At the end of the twelfth century, England put a ceiling on the price of bread and fish and wine; and for the next five centuries that law was revised,

(*Turn to page* 524, *please*)

DIRECTORY of MANUFACTURERS

Following are the company names and addresses of manufacturers whose products are listed in the tables of specifications of complete motor vehicles, tractors, aircraft, and all types of gasoline and Diesel engines.

PASSENGER CARS

For details of their products see pages 131-148.

BUICK Motor Div., General Motors Corp., Flint 2, Mich.
CADILLAC Motor Car Div., General Motors Corp., Detroit 32, Mich.
CHEVROLET Motor Div., General Motors Corp., Detroit 2, Mich.
CHRYSLER Div., Chrysler Corp., Detroit, 31, Mich.
CROSLEY Motors, Inc., Cincinnati 14, Ohio.
DE SOTO Div., Chrysler Corp., Detroit 31, Mich.
DODGE Div., Chrysler Corp., Detroit 31, Mich.
FORD Motor Co., Dearborn, Mich.
HENRY, J., See Kaiser-Frazer Corp.
HUDSON Motor Car Co., Detroit 14, Mich.
KAISER-Frazer Corp., Willow Run, Mich.
LINCOLN-MERCURY Div., Ford Motor Co., Detroit 32, Mich.
MERCURY, See Lincoln-Mercury Div., Ford Motor Co.
NASH Motors Div., Nash Kelvinator Corp., Detroit 32, Mich.
OLDSMOBILE Div., General Motors Corp., Lansing 21, Mich.
PACKARD Motor Car Co., Detroit 32, Mich.
PLYMOUTH Division, Chrysler Corp., Detroit 31, Mich.
PONTIAC Motor Div., General Motors Corp., Pontiac, Mich.
STUDEBAKER Corp., South Bend 27, Ind.
WILLYS-OVERLAND Motors, Inc., Toledo, Ohio,

TRUCKS

For details of their products see pages 149-155.

The American-COLEMAN Co., Omaha 2, Neb.
AUTOCAR Co., Ardmore, Penna.
AVAILABLE Truck Co., Chicago 47, Ill.
BIEDERMAN Motors Corp., Cincinnati 14, Ohio.
BROCKWAY Motor Co., Cortland, N. Y.
BROWN Equipment & Mfg. Co., New York 19, N. Y.
CHEVROLET Motor Div., General Motors Corp., Detroit 2, Mich.
The CORBITT Co., Henderson, N. C.
CROSLEY Motors, Inc., Cincinnati 14, Ohio.
DIAMOND T Motor Car Co., Chicago 23, Ill.
DODGE Div., Chrysler Corp., Detroit, 31, Mich.
DUPLEX Truck Co., Lansing 4, Mich.
FEDERAL Motor Truck Co., Detroit 9, Mich.
FORD Motor Co., Dearborn, Mich.
FOUR-WHEEL Drive Auto Co., Clintonville, Wisc.
FREIGHTLINER Corp., Portland, Ore.
KENWORTH Motor Truck Corp., Seattle 11, Wash.
LINN Coach & Truck Div., Great American Industries, Oneonta, N. Y.
MARMON-HERRINGTON Co., Indianapolis 7, Ind.
OSHKOSH Motor Truck Inc., Oshkosh, Wisc.
PETERBUILT Motor Co., Oakland, Calif.
REO Motors, Inc., Lansing 20, Mich.
STERLING Div., White Motor Co., Milwaukee 1, Wisc.
STUDEBAKER Corp., South Bend 27, Ind.
TRUCKSTELL, Inc., Cleveland 14, Ohio.
WALTER Motor Truck Co., Ridgewood, L. I., N. Y.
WARD LA FRANCE Truck Corp., Elmira, N. Y.
WHITE Motor Co., Cleveland 1, Ohio.
WILLYS-OVERLAND Motors, Inc., Toledo, 1, Ohio.

CITY AND INTERCITY BUSES

For details of their products see pages 156-157.

ACF-BRILL Motors Co., Philadelphia 42, Penna.
BEAVER Metropolitan Coaches, Inc., Beaver Falls, Penna.
C. D. BECK & Co., Inc., Sidney, Ohio.
FITZJOHN Coach Co., Muskegon, Mich.
FLXIBLE Co., Loudonville, Ohio.
General American AEROCOACH, East Chicago, Ill.
GMC Truck & Coach Div., General Motors Corp., Pontiac 11, Mich.
KALAMAZOO Coaches, Inc., Kalamazoo 11, Mich.
MACK Manufacturing Corp., New York 1, N. Y.
MARMON-HERRINGTON Co., Inc., Indianapolis 7, Ind.
REO Motors, Inc., Lansing 20, Mich.
SOUTHERN COACH Mfg. Co., Inc., Evergreen, Ala.
TRANSIT BUSES Div., Cab Service & Parts Corp., Detroit 27, Mich.
WHITE Motor Co., Cleveland 1, Ohio.

AMERICAN TRACTORS

For details of their products see pages 158-163.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wisc.
AMERICAN Tractor Corp. (Terratrac), Churubusco, Ind.
The BROCKWAY Tractor Co., Bedford, Ohio.
J. I. CASE Co., Racine, Wisc.
CATERPILLAR Tractor Co., Peoria 8, Ill.
COCKSHUTT Plow Co., Ltd., Brantford, Canada.
The CORBITT Co., Henderson, N. C.
JOHN DEERE Tractor Works, Deere Mfg. Co., Moline, Ill.
EARTHMASTER Div., Adel Precision Products Corp., Burbank, Calif.
FATE-ROOT-HEATH Co. (Silver King), Plymouth, Ohio.
Harry FERGUSON, Inc., Detroit 32, Mich.
FORD Motor Co., Dearborn, Mich.
FRIDAY TRACTOR Co., Hartford, Mich.
GIBSON, Manufacturing Corp., Longmont, Colo.
INTERCONTINENTAL Mfg. Co., Inc., Garland, Tex.
INTERNATIONAL HARVESTER Co., Chicago 1, Ill.
LINCOLN, See National Steel & Shipbuilding Corp.
Harry A. LOWTHER Co., Inc., Shelbyville, Ind.
MASSEY-HARRIS Co., Racine, Wisc.
MERCER Engineering Works, Inc., New York 7, N. Y.
MINNEAPOLIS - MOLINE Co. (M - M), Minneapolis 1, Minn.
NATIONAL Steel & Shipbuilding Corp. (Lincoln), San Diego 12, Cal.
The OLIVER Corp., Charles City, Iowa.
The OLIVER Corp., Industrial Div. (Cle-Trac), Cleveland 17, Ohio.
R. H. SHEPPARD Co., Inc., Hanover, Pa.
SILVER KING, See Fate-Root-Heath Co.
TERRATRAC, See American Tractor Corp.
TIGER Tractor Corp., Keyser, W. Va.

BRITISH PASSENGER CARS

For details of their products see page 164.

A. F. N. Ltd. (Bristol, Frazer-Nash), Isleworth, Middlesex, England.
ALLARD Motor Co., Ltd., Clapham, London, S.W.4, England.
ALVIS Ltd., Coventry, England.
ARMSTRONG SIDDELEY Motors, Ltd., Coventry, England.
ASTON MARTIN Ltd., Automobile Div., David Brown Tractors Group, Feltham, Middlesex, England.
AUSTIN Motor Co., Ltd., Longbridge, Birmingham, England.
BENTLEY Motors Ltd. (Rolls-Royce Ltd.), London W.1, England.
BRISTOL—See A.F.N. Ltd.
CITROEN Cars Ltd., Slough, Bucks, England.
CONNAUGHT Engineering, Send, Surrey, England.
DAIMLER Co., Ltd. (Daimler, Lanchester), Coventry, England.
DELLOW Motors, Ltd., Alvechurch, Birmingham, England.
FORD Motor Company, Ltd., Dagenham, Essex, England.
FRAZER-NASH—See A.F.N. Ltd.
HILLMAN Motor Car Co., Ltd. (Rootes Group Co.), Coventry, England.
H.R.G. Engineering Co. Ltd., Tolworth, Surrey, England.
HUMBER Limited (Rootes Group), Coventry, England.
JAGUAR Cars Ltd., Coventry, England.
JENSEN Motors Ltd., West Bromwich, Staffordshire, England.
JOWETT Cars Ltd., Idle, Bradford, England.
LAGONDA, Ltd. (David Brown Tractor Group), Feltham, Middlesex, England.
LANCHESTER Motor Co., Ltd. (Daimler Co., Ltd.), Coventry, England.
LEA-FRANCIS Cars, Ltd., Coventry, England.
M.G. Car Co. Ltd., Nuffield Exports Ltd., Abingdon - on - Thames, Berkshire, England.
MORGAN Motor Co., Ltd., Malvern Link, Worcestershire, England.
MORRIS Motors, Ltd., Nuffield Exports Ltd., Cowley, Oxford, England.
RILEY (Coventry), Ltd., Nuffield Exports Ltd., Abington-on-Thames, Berkshire, England.
ROLLS-ROYCE, Ltd. (Rolls-Royce, Bentley), London W.1, England.
ROVER Company Ltd., Solihull, Birmingham, England.
SINGER Motors, Ltd., Small Heath, Birmingham, England.
STANDARD Motor Co., Ltd. (Standard, Triumph), Coventry, England.
SUNBEAM-TALBOT Ltd. (Rootes Group), Coventry, England.
TRIUMPH—See Standard Motor Co.
VAUXHILL Motors Ltd., Luton, Beds, England.
WOLSELEY Motors, Ltd. (Nuffield Exports Ltd.), Cowley, Oxford, England.

OTHER FOREIGN CARS

For details of their products see pages 165-166.

AUSTRALIAN

General Motors-HOLDEN'S Ltd., Melbourne, Australia.

CZECHOSLOVAKIAN

MOTOKOV, Ltd., (Skoda & Tatra), Enterprise Iv, Praha, Czechoslovakia.

FRENCH

Automobiles BUGATTI, Molsheim, Bas-Rhin, France.
Societe Anonyme Andre CITROEN, Paris XV, France.
FORD S.A.F., Poissy, S. & O., France.
S.A. des Anciens Etablissements HOTCHKISS, St. Denis, Seine, France.
MATHIS S.A., Paris XVI, France.
S.A. des Anciens Etablissements PANHARD & LEVASSOR, Paris 13, France.

(Turn to page 420, please)

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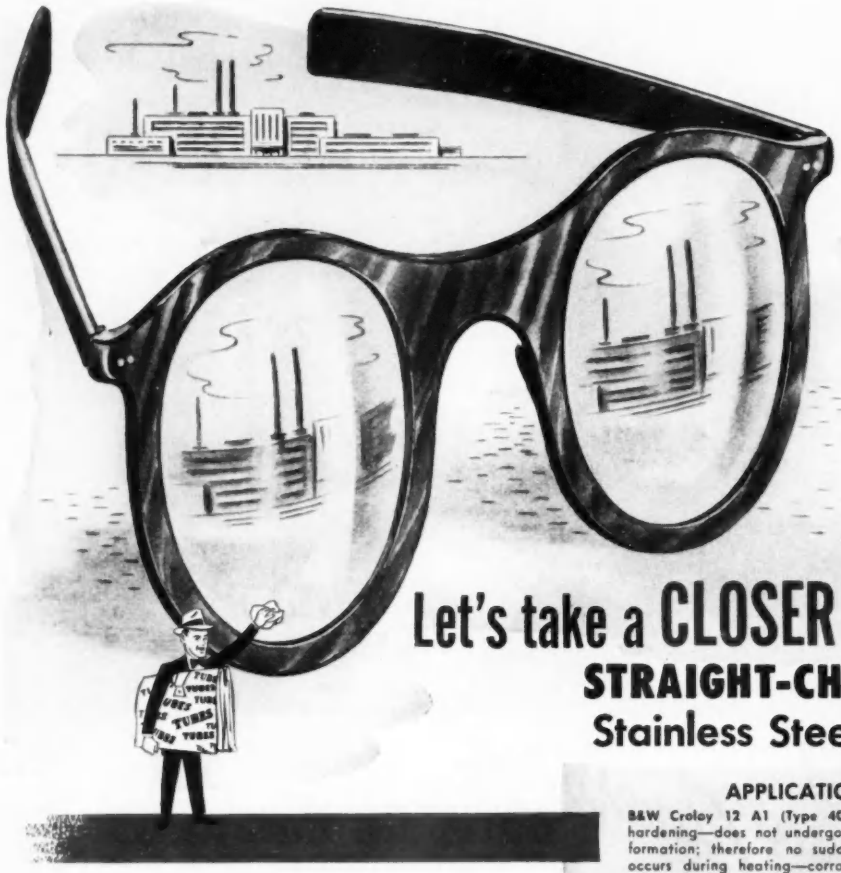

Let's take a CLOSER LOOK at STRAIGHT-CHROMIUM Stainless Steel Tubing

Present restrictions on nickel have cut production of austenitic stainless steel tubing far below demand. If this critical shortage of nickel-bearing stainless tubing is compelling you to find other suitable grades, you should take a closer look at the straight-chromium analyses.

Readily available in quantity from B&W are pipe and tubes of the four non-nickel-bearing types listed at the right with typical uses. These ferritic and martensitic steels are magnetic at ordinary temperatures after all conditions of heat treatment, have relatively high oxidation resistance at elevated temperatures, and resist attack by many corrosive media. With certain modifications in procedures, they can be satisfactorily fabricated by all methods applicable to austenitic grades.

For both pressure and mechanical applications, tubes of straight-chromium stainless analyses are worthy alternates for hard-to-get nickel-bearing stainless types. Would you like a copy of TDC-140 containing technical data on these easy-to-get grades of stainless tubes? Ask Mr. Tubes—your B&W Tube Representative—about their suitability for your applications.

APPLICATIONS

B&W Croloy 12 A1 (Type 405, Seamless)—Non-hardening—does not undergo appreciable transformation; therefore no sudden volume change occurs during heating—corrosion and oxidation resistant. Typical uses: Conveyor lines in oil refining and chemical processing, heat exchanger tubing, boiler tubing in mercury heat cycle, catalytic oil cracking processes where fins have been welded to tubes.

B&W Croloy 12 (Type 410, Seamless and Welded)—Hardenable—moderate corrosion and heat resistance. Typical uses: Machinery in the chemical and food processing and packaging fields.

B&W Croloy 18 (Type 430, Seamless and Welded)—Sufficient ductility for forming simple parts—good corrosion and oxidation resistance—can be polished or buffed to pleasing finish. Typical uses: Conveyor lines in chemical processing field; condensers and piping in production, transportation, and storage of nitric acid and in nitrating operations involving mixed acids; furnace parts; retorts; ornamental structures.

B&W Croloy 27 (Type 446, Seamless)—Corrosion resistant—excellent heat resisting qualities. Typical uses: Furnace parts, heat interchangers, kilns, pyrometer protection tubes, soot blower elements, dehydrogenation equipment in chemical and oil refining fields. Also well suited for glass sealing applications.

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION
General Offices & Plants
Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing

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B&W SEAMLESS and WELDED TUBES

TA-16515

HUB of production

This is an R. D. Wood 3,000-ton high-speed forging and cogging hydraulic press. It is used for a variety of work—forming, forcing, upsetting, impact extrusion. It handles aluminum, bronze, magnesium, steel, brass, and other metals. It is an essential part of accurate mass metal component production—and is representative only of a wide range of hydraulic presses for all metalworking operations within the automotive and aircraft industries. Write for additional information.

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ACCUMULATORS
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Established 1803

RDW WOOD

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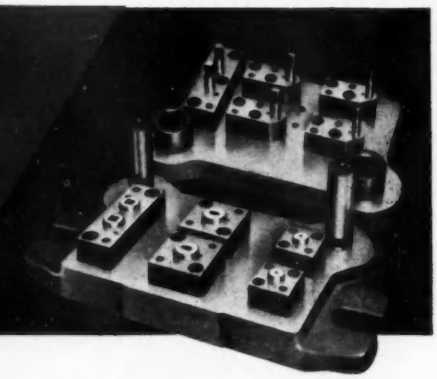
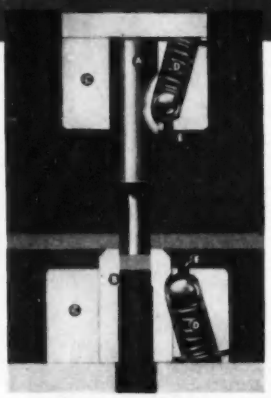
CUT YOUR COSTS with R-B INTERCHANGEABLE PUNCHES and DIES

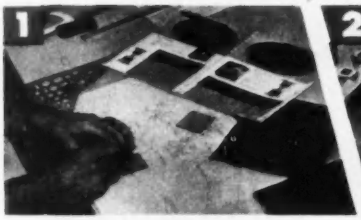




How They Work . . .

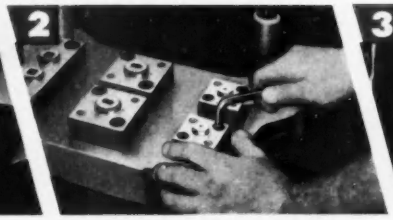
R-B punches (A) and die buttons (B) are locked in standard retainers (C) which are mounted on the die shoes. A spring-loaded ball lock (D) produces positive radial alignment and vertical locking; no additional keying is necessary regardless of the size or shape of the punch. Up to ¾" stock can be pierced. R-B punches and dies are easy to insert; push and twist and they're locked. They're easily removed, too. Retainer holes (E) provide for insertion of tanged tool which releases ball and allows instant removal.

How They Save Time and Money . . .



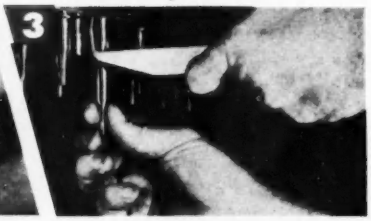
IN DIE DESIGNING

R-B standardized retainers are available in three shapes and many sizes, and where necessary, R-B special retainers can be supplied. You save "time on the board" because you are working with *standard* equipment.



IN DIE CONSTRUCTION

R-B punch and die retainers and special retainers are quickly, easily and accurately mounted without special machining. With them, you can save much of your skilled die-makers' time.



IN DIE OPERATION

HERE'S WHERE YOU *REALLY* SAVE. R-B punches and dies cut press down time for replacement to a minimum. They're instantly removed—quickly changed—yet accurately aligned when locked.

Yours for the asking! The complete story on the remarkable savings of R-B interchangeable punches and dies. Just write today.

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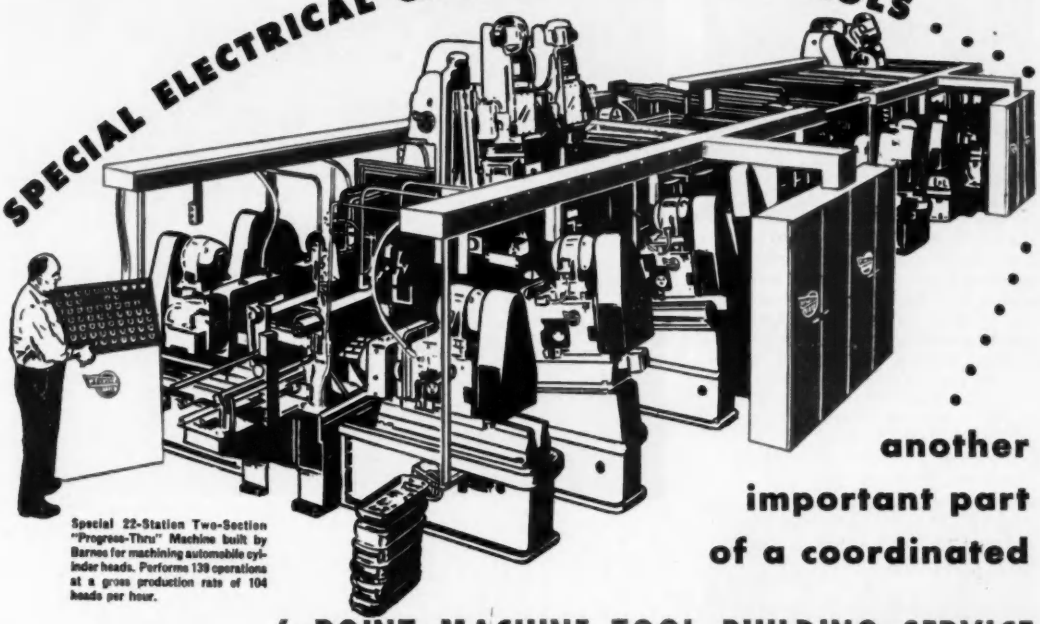

Special 22-Station Two-Section "Progress-Thru" Machine built by Barnes for machining automobile cylinder heads. Performs 139 operations at a gross production rate of 104 heads per hour.

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Providing special electrical circuits and controls is another important part of the coordinated 6-point machine tool building service rendered by Barnes. The example shown above partially illustrates how this equipment is assembled to provide easy maintenance, maximum safety, and simplicity of operation. Inter-locking circuits make the sequence of operations automatic, fast, and sure. Safety devices are incorporated to suit each job which detect and signal danger conditions and prevent costly repairs of machine or tools. Controls are provided which minimize human effort. Separate control stations permit individual head operations to speed tool changes. Wiring is according to JIC standards.

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Because all planning, engineering, and manufacturing efforts at Barnes are closely coordinated, you get a complete machine tool building service all from one convenient, dependable source. Broad, varied engineering experience and creative skills have been developed over the years which enable Barnes to help you solve many troublesome production problems. If your present or future machining needs call for faster, more efficient methods, we will be glad to work with you as rapidly as current conditions will permit.

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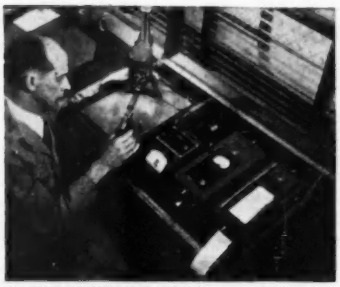
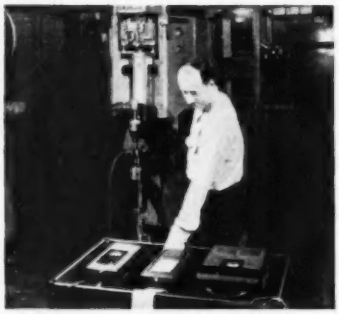
MULTIPLE SPINDLE DRILLING, BORING, TAPPING MACHINES • AUTOMATIC PROGRESS-THRU AND TRANSFER TYPE MACHINES



HOW'S THE SURFACE? The Brush Surface Analyzer® shows average roughness in micro-inches . . . and provides you with a chart showing the irregularities making up this average. This chart is a highly magnified profile of the surface, enlarged beyond the range of optical microscopes. Variations of less than 1/1,000,000 of an inch are readily apparent, and can be measured on the calibrated chart. Analyzer shown is at Commercial Centerless Grinding Co., Cleveland, Ohio.



HOW'S THE TIMING? This Brush Analyzer consisting of a-c amplifier, d-c amplifier and direct-writing oscillograph is used by Taylor-Winfield Corporation to check the current and timing calibration of each spot welder before shipment. By observing wave shapes the inspectors calibrate controls quickly and accurately.

WHAT'S YOUR PROBLEM? Brush Analyzers simplify a host of design and production studies. Here, one is used by engineers of The Marion Power Shovel Company to get design facts from excavators in actual operation.

For bulletins describing Brush instruments shown above, write The Brush Development Company, Dept. C-25, 3405 Perkins Ave., Cleveland 14, Ohio.

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Save plotting and testing time with a BRUSH analyzer

You can record static or dynamic phenomena instantaneously and accurately . . . test parts and structures under actual operation . . . with the Brush Strain Analyzer. Engineers throughout Industry are discovering important time savings with this Brush electronic instrument. It eliminates many testing and plotting operations in the study of torque, strain, vibration, pressure and other variables. Its direct-writing oscillograph provides a permanent record of the test.

The Brush Strain Analyzer is a rugged, portable tool. It can be used anywhere . . . in the laboratory, on the test floor or in the field, wherever the job requires.

Find out how this versatile Analyzer can help solve your problems and save your time! Brush representatives are located throughout the U. S. In Canada: A. C. Wickman Ltd., Box 9, Station N, Toronto.

Put it in writing with a Brush Recording Analyzer

For catalog describing Brush instruments and their application, write The Brush Development Co., Dept. DD-25, 3405 Perkins Ave., Cleveland 14, Ohio.

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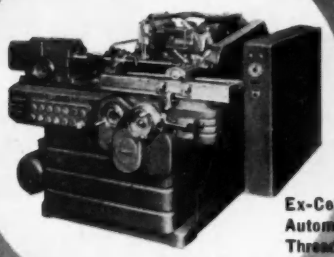
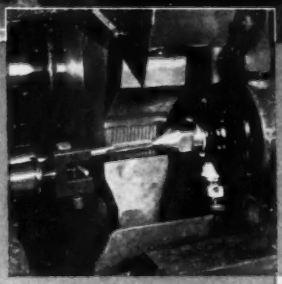
ACOUSTIC DEVICES • ULTRASONICS • INDUSTRIAL & RESEARCH INSTRUMENTS

THE BUSIEST MACHINE IN YOUR SHOP

EX-CELL-O AUTOMATIC THREAD GRINDER

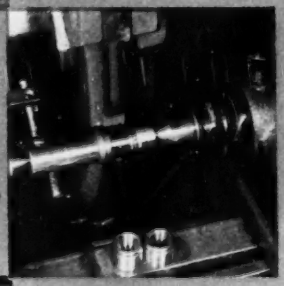


Ex-Cell-O Style 33 Automatic Precision Thread Grinder for external threads. Standard models for internal threads and universal models for both internal and external threads also are made by Ex-Cell-O.

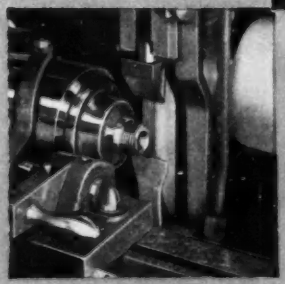


Grinding threads on cast-iron part with diamond dressed multiple-rib wheel on a Style No. 33 Grinder.

Skip-tooth diamond dressed multiple-rib wheel (wheel form is twice pitch of thread) grinding a ⅝"—18 tap.



Threading stainless steel aircraft bushings on an Ex-Cell-O Style 33 Automatic Thread Grinder.



Grinding threads on the end of a machine gun barrel which is held within a special work head.

For high production with extraordinary precision, Ex-Cell-O Style 33 Automatic Thread Grinder is a popular choice. It is easy to set up and operate. With equipment for using multi-rib wheels, as shown in the accompanying photographs, output exceeds other methods.

Thread grinding is a must for hardened steel parts. More and more shop supervisors are discovering that grinding is also economical for materials that are tough and abrasive, or soft materials that are inclined to tear under the pressure of cutting tools.

For more information on thread grinding call your Ex-Cell-O representative or write directly to Ex-Cell-O. Please state whether you are interested in internal or external threads or both.

XLO

EX-CELL-O CORPORATION DETROIT 32 MICHIGAN

51-28

MANUFACTURERS OF PRECISION MACHINE TOOLS CUTTING TOOLS • RAILROAD PINS AND BUSHINGS DRILL JIG BUSHINGS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

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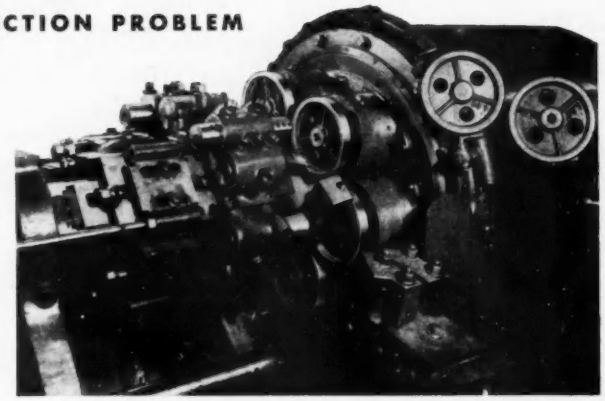
HIGH PRODUCTION TOOLING

TYPICAL OF THE EXTRA VALUES YOU GET WHEN YOU BRING A PRODUCTION PROBLEM TO BAIRD . . .

Year-in and year-out, in many automobile and other headlined production plants, Baird's No. 76-H Automatic Chucking Machine has proved itself to be one of the best production units of its kind. It's easy to operate and service; has unusual versatility in tooling, operations, speeds; and it cuts costs with quality control.

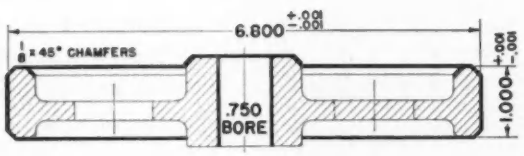


BAIRD No. 76H AUTOMATIC CHUCKING MACHINE

But the pay-off comes when Baird engineers adapt this 6-spindle unit to your specific tooling and production requirements.

For example, gear blanks (drawing below) are turned completely in one operation as shown. Material: High tension iron-hardness 85-90 Rockwell B scale. Production: 65 seconds each, 55 pieces per hour.

Of course we're busy. But not too busy to try and solve a problem for a new or old customer. Ask Baird about it!



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NEW! Black & Decker No. 12 SCRUGUN* only $59.50

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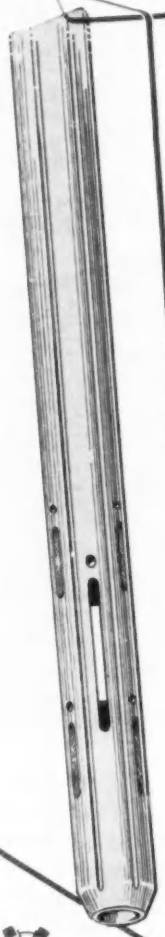
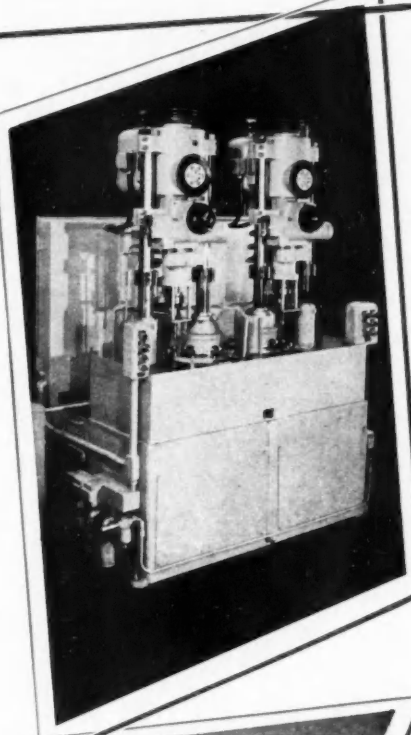
... use them to save time, trouble and money!

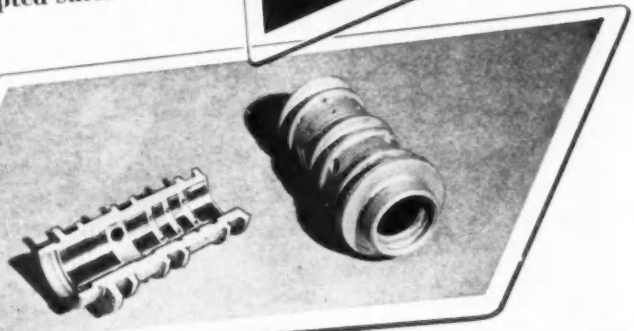
PRECISION
in Hydraguide steering control generated by Microhoning



Hardened steel valve sleeves held to .0002" tolerance for size, geometry and alignment. Edges of control surfaces made sharp and clean.

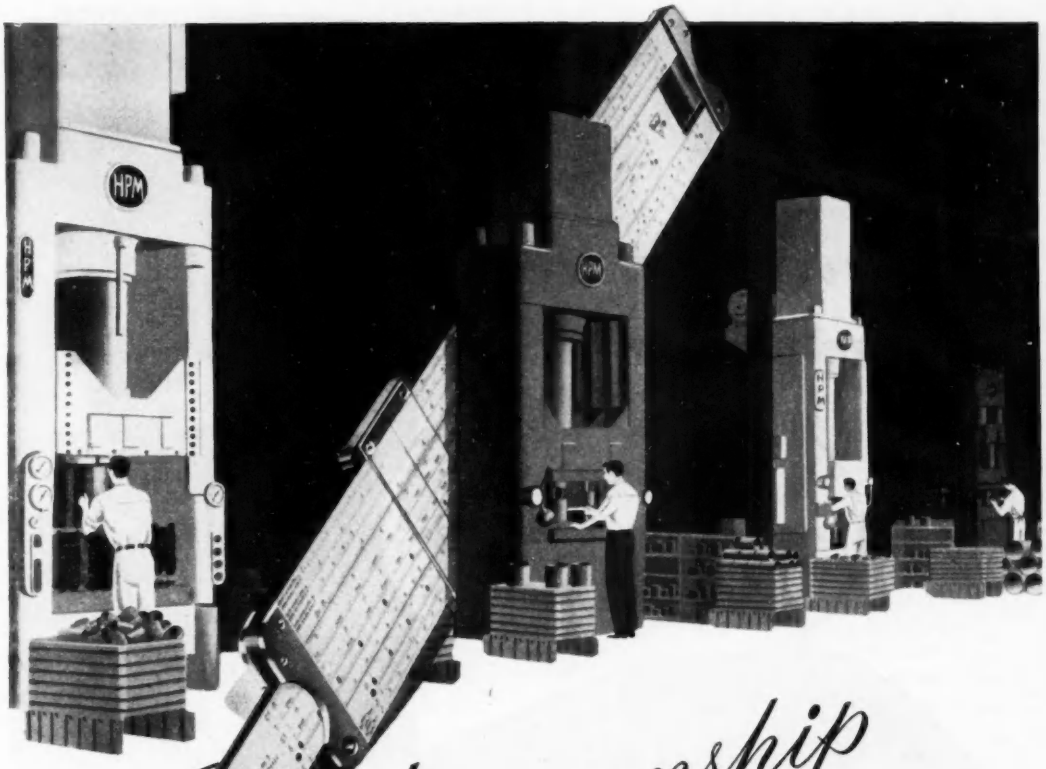
New guided type MICROMOLD tool and MICROHONER machine makes possible the productive generation of these precision tolerances in hard, interrupted surfaces.





For complete information on MICROHONING Interrupted Surfaces write for Cross Hatch Vol. 3. No. 3.

MICROMATIC HONE CORPORATION
8100 SCHOOLCRAFT AVENUE • DETROIT 4, MICHIGAN
District Field Offices: 1323 S. Santa Fe Avenue, Los Angeles 21, California • 206 S. Main Street, Rockford, Illinois • 231 S. Pendleton Avenue, Pendleton, Indiana • MICRO-MOLD Manufacturing Division, Boston Post Road, Guilford, Connecticut • 55 George Street, Brantford, Ontario, Canada



Craftsmanship

. . . . . GOES BEYOND THE SLIDE RULE AT H-P-M

"By the work, one knows the workman" . . . what greater tribute can a customer pay a manufacturer or his product?

The illustration above shows an installation of H-P-M metal working presses at The Welding Fittings Corp., New Castle, Pennsylvania. When asked why his company standardized on H-P-M, Mr. Cliff J. Francis, General Manager of Welding Fittings Corporation replied, "Take a look at an H-P-M Press — you can tell by the careful attention to minor external details, the superb craftsmanship and engineering skill that just has to be behind every H-P-M machine."

Craftsmanship . . . ability accumulated through 75 years of specialized experience in the field of hydraulics . . . truly does go beyond the slide rule here at H-P-M. It is this important, intangible ingredient in H-P-M equipment that assures the top performance which builds customer confidence. And, customer confidence in H-P-M and H-P-M products is the corner stone upon which our business is built. Whatever your production problem, you'll profit by the specialized experience of H-P-M. Invite us in at the planning stage, won't you?

HPM 75th YEAR

THE HYDRAULIC PRESS MFG. COMPANY

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Builders of Presses for the Metal Working & Processing Industries • Plastics Molding Presses • Die Casting Machines • Hydraulic Pumps, Valves & Power Units

Life-Linestarter
PAIRED FOR PRODUCTION
Life-Line motor
ON
TRIPPED
OFF
RESET
OPEN COVER
WESTINGHOUSE
DO NOT LUBRICATE

FREE maintenance men for other important jobs with these two

Why nurse motors and controls? This pair stands on its own feet . . . takes the increased production rate without "babying". For example: Life-Line motors need no lubrication . . . free men for other maintenance duties. Just install Life-Line and forget them. Life-Linestarters® cut maintenance, too. You can take one apart with a screw driver—in two minutes. One single moving element. No sliding members . . . nothing to stick or jam. These features pay off. Take the case of an eastern plant, for example:

They installed ten new punch presses. Shortly, motor overheating and burnouts resulted. A check revealed lack of lubrication as the trouble. Motors installed fourteen feet above floor level were "forgotten".

Life-Lines have replaced these troublemakers. Result? No more outages. Motors are still forgotten—but safely. They *need no lubrication.*

How about the starters? Many times vibration or a sudden shock from the press caused ordinary starters with gravity-type operation to open. This stopped production. But with the Life-Linestarter, faulty operation is a thing of the past. The inverted, clapper-type design will not open from shock or vibration.

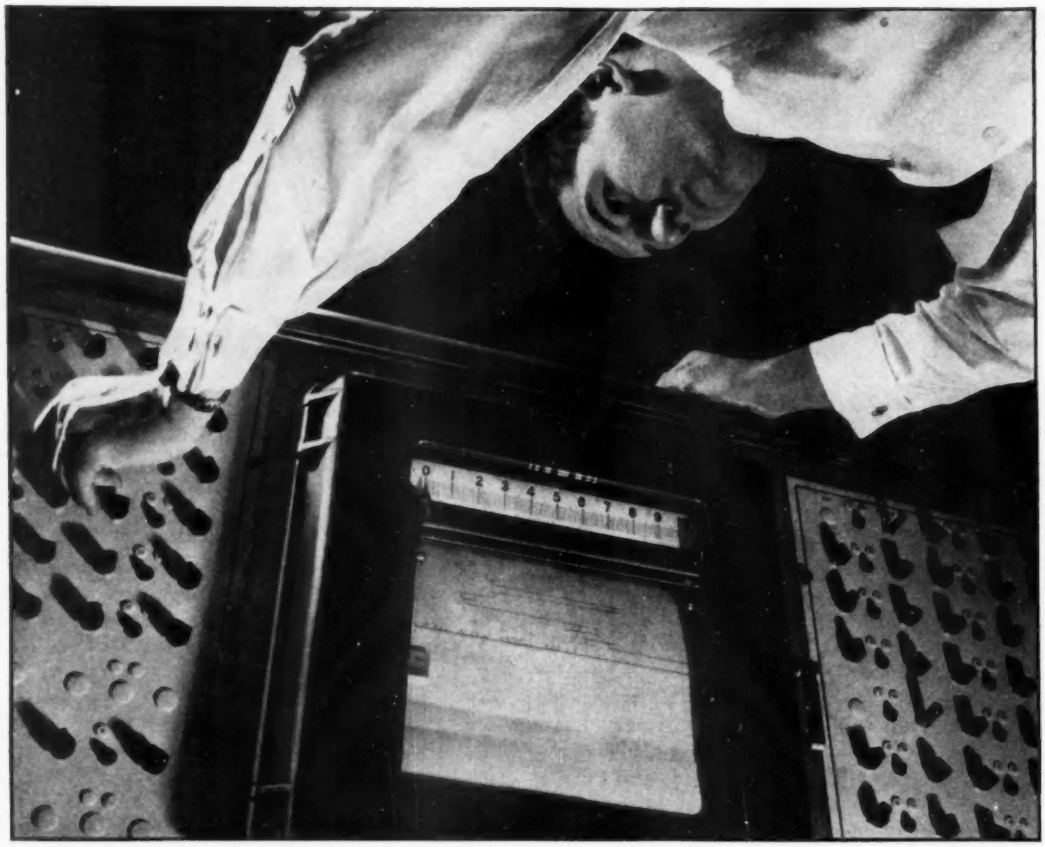
Here is but one example from many where Life-Line motors and Life-Linestarters paid off on the production line . . . freed maintenance people for other duties.

Why not take advantage of this Life-Line production team? It costs no more. A check with your Westinghouse representative will give you the complete facts on each. Ask him for copies of "Life-Line Motor Book", B-3842 and "Tomorrow's Starter Today", B-4677. He has copies for you. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-21628

YOU CAN BE SURE.. IF IT'S Westinghouse

Life-Line

MOTORS and CONTROLS



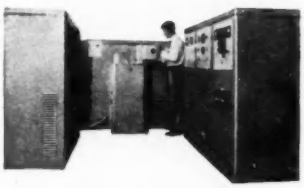
RIGHT from the start . . .

Expert scientific control makes ALUMICAST castings faultless

There's no guesswork done at ALUMICAST. Every step from ingot to the finished casting is subject to scientific tests and controls to assure production of uniformly high quality castings. Right from the start every piece will meet your specifications.

No matter where you are located, you will find ALUMICAST a quick and dependable source for aluminum or magnesium castings. You are cordially invited to consult us relative to your civilian or defense needs.

ALUMICAST CORPORATION, 1521 N. Kilpatrick Avenue, Chicago 51, Illinois.

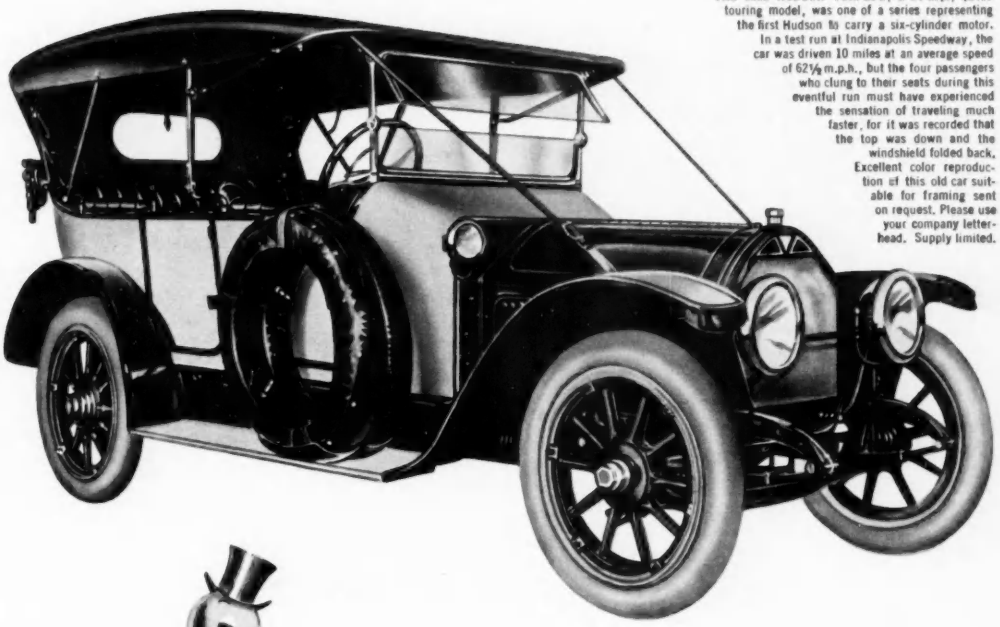


Illustrations above show the Quantometer which provides our laboratory technicians with a graphically recorded analysis of sixteen different elements—in less than three minutes. This assures the correct casting alloy composition in every "heat". You benefit because of expert scientific control ("E.S.C.").

ALUMICAST

ALUMINUM and MAGNESIUM PERMANENT MOLD and DIE CASTINGS

"E.S.C." EXPERT SCIENTIFIC CONTROL



THE 1913 HUDSON TORPEDO, a 54 h.p., $2450 touring model, was one of a series representing the first Hudson to carry a six-cylinder motor. In a test run at Indianapolis Speedway, the car was driven 10 miles at an average speed of 62½ m.p.h., but the four passengers who clung to their seats during this eventful run must have experienced the sensation of traveling much faster, for it was recorded that the top was down and the windshield folded back. Excellent color reproduction of this old car suitable for framing sent on request. Please use your company letterhead. Supply limited.

Smart as a canary ...Smooth as a kitten

"I can see Uncle George as if it were yesterday. He was very proud of his new Hudson Torpedo, and after driving it home for the first time, we stood at the curb admiring it until after dusk. I heard him say over and over . . . 'Just look at her, smart as a canary, and she purrs right along just as smooth as a kitten!' He was especially proud of her paint job, although we had thought he cared little about color. The truth was that color meant a great deal to him, and he was always disappointed that there were only 2 to 3 car colors to choose from." That's how it was in 1913. When Uncle George buys a new car today he can choose from 10 or more solid colors and twice as many two-tone combinations . . . made possible because of the *scientific approach* to the special problems of car finishes. In this Rinshed-Mason has led the way.

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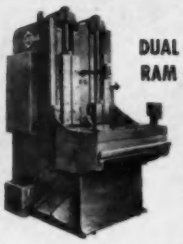
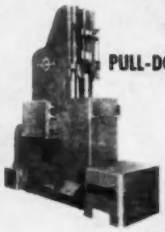
America's leading manufacturer of fine lacquers, enamels and undercoats for automobiles, trucks, farm equipment, appliances, and other products of industry.

95% OF ALL BROACHING JOBS CAN BE HANDLED BY ONE OF THESE COLONIALS

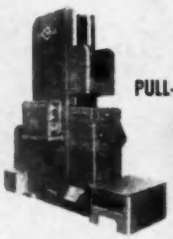
SINGLE RAM



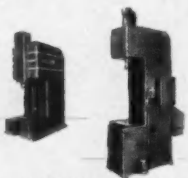
DUAL RAM



PULL-DOWN



PULL-UP



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UNIVERSAL HORIZONTAL

3 ways to get good BROACHING equipment Faster!

Practically everybody today has jobs which they want to do by broaching—to take advantage of broaching's extremely high rate of metal removal and consistently high accuracy. That's why Colonials are in such great demand.

Therefore, if you need broaching equipment and want the best, we urge you to investigate ALL THREE of the following suggestions:

1. Ordering NEW machines

Check with us as to delivery time, based on your priority and need.

2. Look for Colonials IN YOUR PLANT

Check your present equipment. Possibly you have an older Colonial we can re-tool for a job more vital to you. We will be glad to help you cut the time of getting the machine on the new job.

3. Look around for USED Colonials

Colonials are VERSATILE machines. Every Colonial can handle a surprisingly wide variety of jobs—and every Colonial since our early days, has been *built to last*—to keep working efficiently year in and year out.

If it has received any kind of reasonable care, a used Colonial is still one of the best broaching machines you could buy.

Check with us as to its suitability for your job. We'll be glad to work with you in re-tooling it.

PIONEERS OF HSS BROACHING

COLONIAL

BROACH CO DETROIT 13

How to get the answers to many of your Metalworking Problems

- Call the Houghton Man—if you're having heat *treating* difficulties—can't get required physicals from today's lean alloy steels, troubles with deformation or cracking in complex heat treated parts, improper hardness depth.

- Call the Houghton Man—if you are having trouble in *machining*—poor finishes or tool life, production too low, costs too high.

- Call the Houghton Man—if *rust* is your bugaboo—on finished parts, between operations or in shipment.

- Call the Houghton Man—if you're seeking a more efficient *cleaner*—one which will give you better results faster, at lower unit cost.

- Call the Houghton Man—often he can give you help right on the spot.

- Call the Houghton Man—he represents a company with more than 85 years' experience in solving metalworking problems—a company with the technical "know-how" and research facilities to find the answers to your problems—a company interested in solving your problems.

Write for "Product Index" Bulletin

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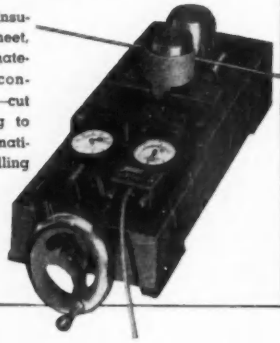
Glass tubing, bare wire, insulated wire, steel rods, sheet, and similar continuous material is gaged and size-controlled or chart-recorded—cut sections sorted according to requirements — all automatically. Gages for controlling grinders and other production machines.



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High speed, completely automatic from machine to package. Semi-automatic or hand fed. Inspect multiple dimensions. Anything from ¼" diam. balls to — what's your sorting problem?

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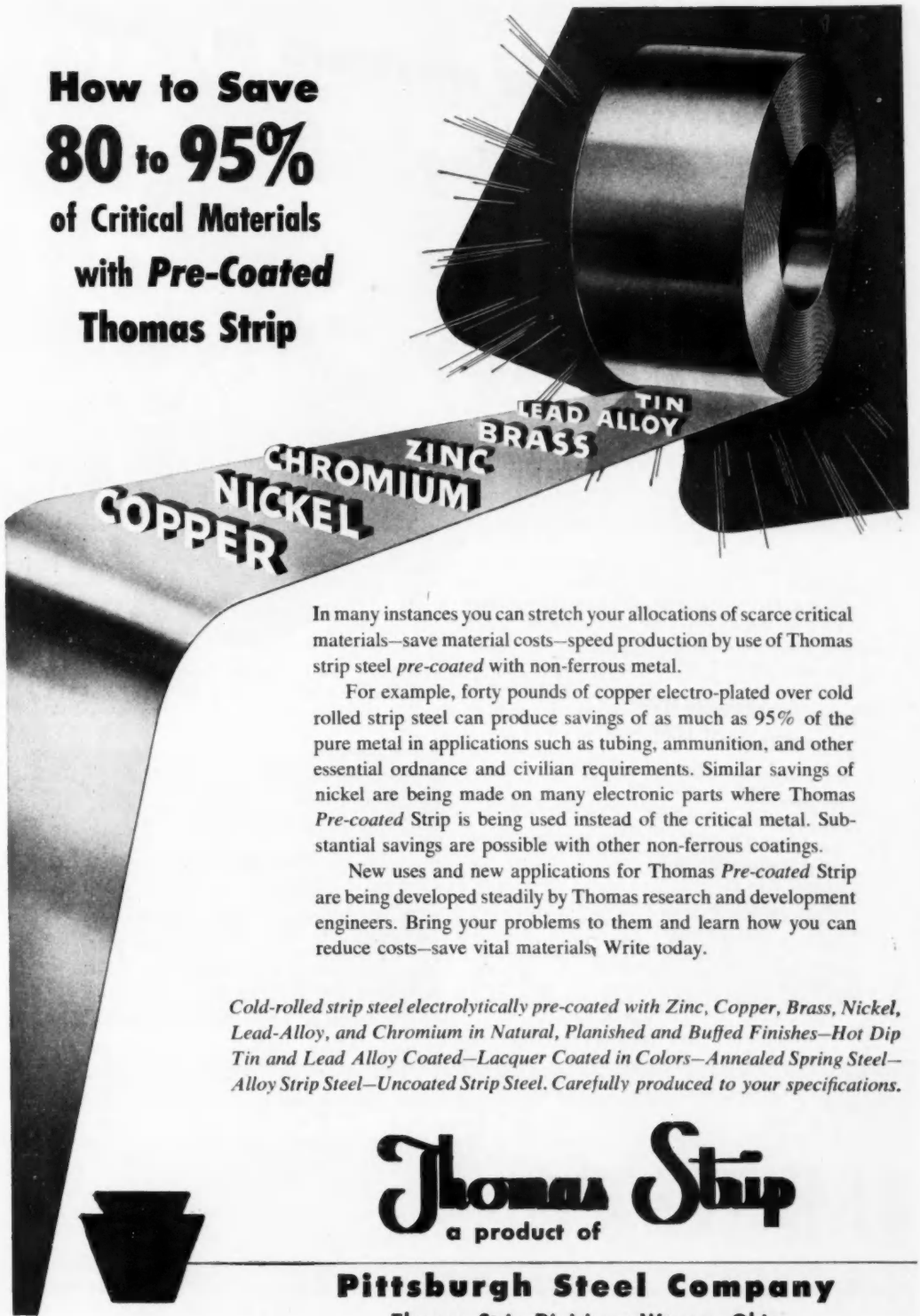
FEDERAL PRODUCTS CORPORATION • 1263 EDDY STREET • PROVIDENCE 1, R. I.

How to Save 80 to 95% of Critical Materials with *Pre-Coated* Thomas Strip



In many instances you can stretch your allocations of scarce critical materials—save material costs—speed production by use of Thomas strip steel *pre-coated* with non-ferrous metal.

For example, forty pounds of copper electro-plated over cold rolled strip steel can produce savings of as much as 95% of the pure metal in applications such as tubing, ammunition, and other essential ordnance and civilian requirements. Similar savings of nickel are being made on many electronic parts where Thomas *Pre-coated* Strip is being used instead of the critical metal. Substantial savings are possible with other non-ferrous coatings.

New uses and new applications for Thomas *Pre-coated* Strip are being developed steadily by Thomas research and development engineers. Bring your problems to them and learn how you can reduce costs—save vital materials. Write today.

Cold-rolled strip steel electrolytically pre-coated with Zinc, Copper, Brass, Nickel, Lead-Alloy, and Chromium in Natural, Planished and Buffed Finishes—Hot Dip Tin and Lead Alloy Coated—Lacquer Coated in Colors—Annealed Spring Steel—Alloy Strip Steel—Uncoated Strip Steel. Carefully produced to your specifications.

Thomas Strip
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You'll get the right answers to your resistance welding die design problems from MALLORY

Example of Mallory ingenuity and know-how is this special die for simultaneously projection welding 3 separate fin-like components to a conical sleeve.

HOW TO GET HIGH WELDING PRODUCTION AT LOW COST

When you turn to Mallory for your resistance welding needs, you take advantage of experience gained in more than 20 years of pioneering research and applied engineering in resistance welding alloys.

That's why you can count on Mallory products and services for outstanding performance at low cost. Call on Mallory for resistance welding . . .

Electrodes
Dies
Castings
Holders
Rods & Bars
Forgings

You get what you want—high production at low cost—with Mallory-designed resistance welding dies. They're right for you because you get . . .

- **Fast delivery**
- **Low initial cost**
- **Low operating cost**
- **Maximum shop production**

With Mallory-designed and built resistance welding dies you get the benefit of . . .

More than 20 years of die-making and metallurgical experience.

Designs that include replaceable inserts . . . maximum water cooling . . . alloys developed to give maximum life.

Call or write Mallory whenever you have a die design problem. You'll get the right answer.

In Canada, made and sold by Johnson Matthey and Mallory, Ltd. 110 Industry St., Toronto 15, Ontario

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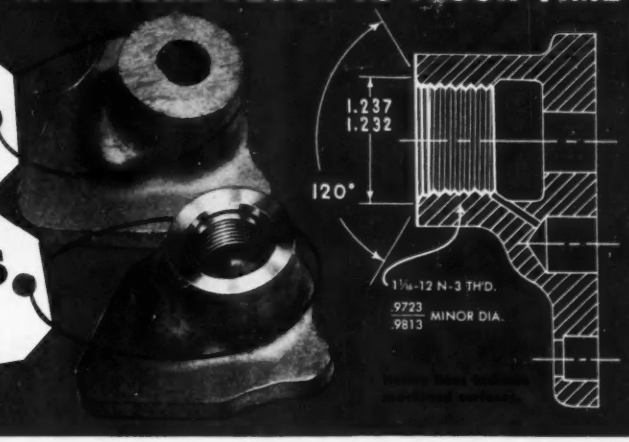
For information on Titanium Developments contact Mallory-Sharon Titanium Corp., Niles, Ohio.

THE P&J 3U AUTOMATIC

MACHINES THIS JOB IN RECORD FLOOR-TO-FLOOR TIME

RUSH

2 MINUTES FLAT



Five precision-operations are specified on these aluminum alloy Auxiliary Pump bodies for Jet Aircraft Engines.

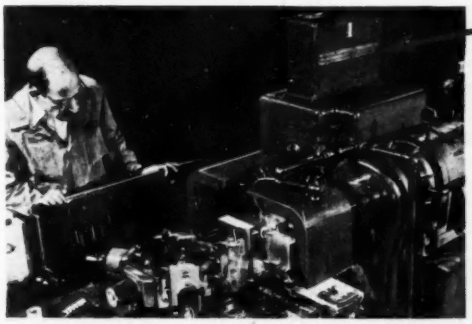
Producing this work to difficult "aircraft-quality" standards presented no problem to Chandler-Evans' tool engineers:

They simply tooled up a P&J 3U AUTOMATIC

— including a P&W Precision Ground Thread Tap and the P&J Automatic Tapping Control unit you see mounted on the top of the machine (a combination which easily maintains the required close tolerances for a Class 3 thread on a long production run)

— and machined these castings well within the unusually high-precision limits insisted upon by the Aircraft Industry

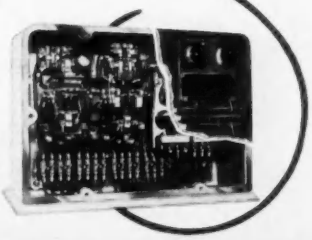
— in the record floor-to-floor time of 2 minutes flat!



Operations

as indicated by heavy lines in the drawing:
1st — DRILL
2nd — FACE
3rd — BORE
4th — C'BORE, C'SINK
5th — TAP

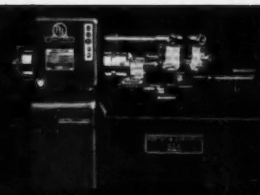
Production-tapping for Class 3 thread is accomplished by means of this P&J-designed Automatic Tapping Control Unit.



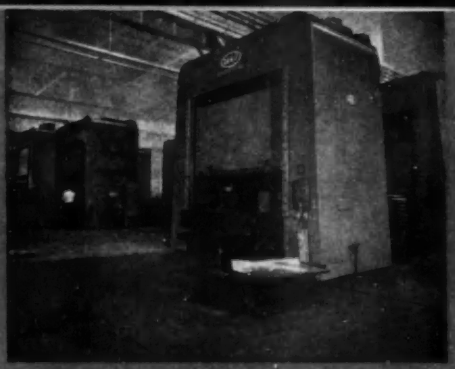
POTTER & JOHNSTON Co.

Subsidiary of PRATT & WHITNEY
Division NILES-BEMENT-POND COMPANY
PAWTUCKET, RHODE ISLAND, U. S. A.

Precision Production Tooling for 53 years



All the precision, stamina, speed and high-production possibilities you could ever hope for are built into the P&J 3U Automatic for profitably machining castings and forgings up to 6" in dia.



UNOBSTRUCTED PRODUCTION AREAS like the one around these Danly Underdrive Presses are a feature of underdrive press installations—and typical of the efficient working conditions found in the new Buffalo Stamping Plant of the Ford Motor Company.

FINISHED STAMPINGS are removed from the press automatically here at the end of the line by an automatic unloading device. This mechanical handling, "Automation," is a Ford development for increased material handling efficiency.

Producing Big Stampings Faster with DANLY UNDERDRIVE at FORD'S new Buffalo Stamping Plant

Uninterrupted press operation and speedy, efficient material handling are vital in the production of large automobile body stampings. Big Danly Underdrive Presses like these fill the bill in the huge new plant of the Buffalo Stamping Division, Ford Motor Company.

Danly Underdrive Press design provides maximum head room for crane ways, extra clear working space to facilitate material handling, and keeps nearly all service and maintenance operations on a separate sub-floor level, clear of the production area. In addition, Danly features like the exclusive Danly Cool-Running Clutch and pressure lubrication monitored by a safety switch automatically assure steady, dependable performance under the punishment of continuous high speed production.

Call a Danly Press Engineer today for a specific discussion of the advantages of Danly Presses on *your* production line.

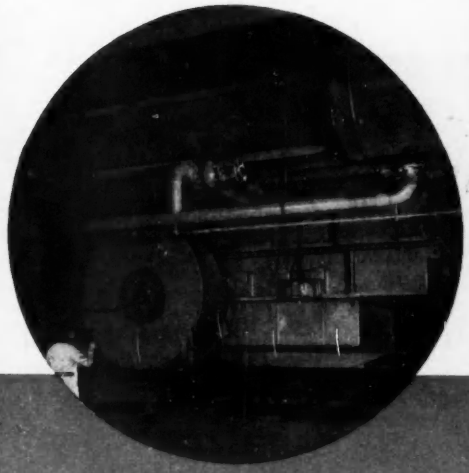
Mechanical Presses . . . 50 to 2000 tons

DANLY®

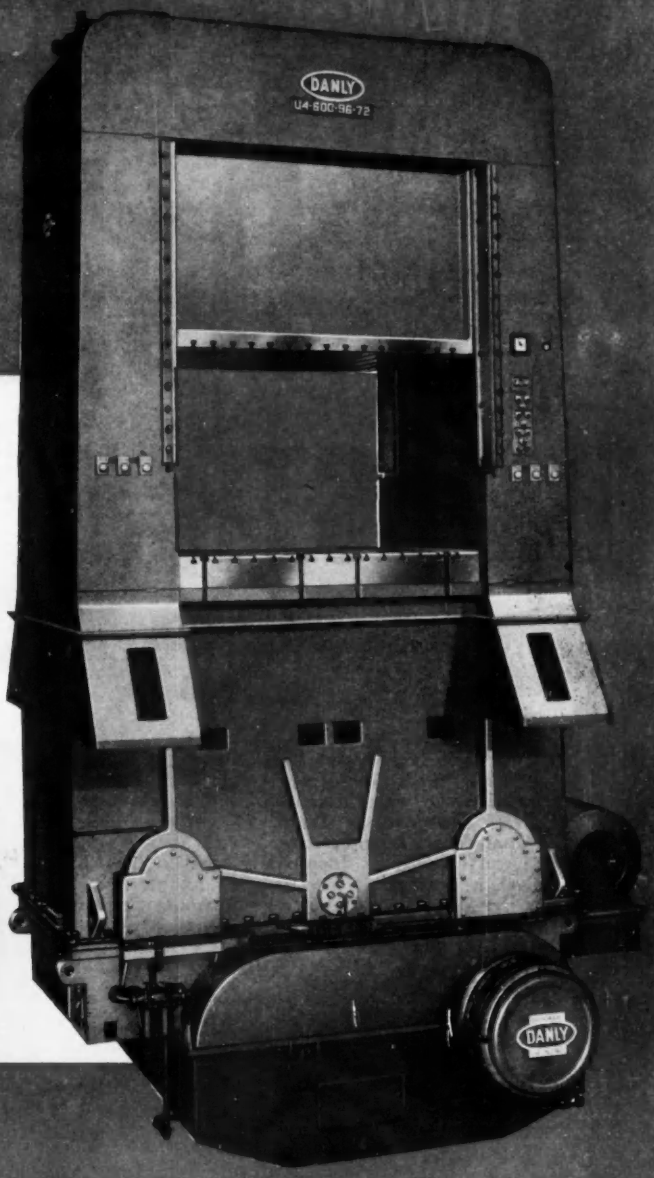
IT COSTS LESS TO RUN A DANLY PRESS

WORKING LEVEL VIEW of a Danly 1000 Ton Underdrive Press performing a piercing operation on front floor pans for Ford production. These big stampings are automatically conveyed to the dies by Ford "Automation."

PRESSES



SUB-FLOOR VIEW of Danly Underdrive Press showing clear working space for service and maintenance—obstruction of the working area above is unnecessary. Note the outboard mounted position of the Danly Cool-Running Clutch, simplifying maintenance still further.



CLEAN FUNCTIONAL DESIGN above the production level keeps working space open; easy access to all main working parts from the sub-floor level speeds servicing. Friction disc type lining in Danly Cool-Running Clutches and Brakes can be completely replaced in less than 30 minutes.

DANLY MACHINE SPECIALTIES, INC.

2100 South Laramie Avenue, Chicago 50, Illinois

ELIMINATE DOWN-TIME . . .

INCREASE PRODUCTION . . .

WITH Delpark INDUSTRIAL FILTERS

CONTINUOUS • FULL-FLOW • SELF CLEANING • FULLY AUTOMATIC

Elimination of down-time and increased production efficiency of machines which use coolants are two of the factors which have contributed to the widespread acceptance of Delpark Industrial Filters. Outstanding names in American industry which depend on Delpark Industrial Filters for greater machine efficiency include such well-known names as the Studebaker Corporation, Cummins Engine Company, and the Warner Gear Division of the Borg-Warner Corporation.

Proper coolant filtration prevents attrition in grinding operations and lowers rejections. More uniform limits are maintained. A free-cutting wheel permits greater accuracy, better finish. Increase your machine efficiency with Delpark Industrial Filters.

Write for more complete information

**LONGER WHEEL LIFE • UNIFORM COOLANT TEMPERATURE
LOWER REJECTIONS • NO DOWN-TIME FOR DESLUDGING RESERVOIR**

Delpark

INDUSTRIAL FILTRATION

Backed by 30 Years Experience in Industrial Filtration

Visit our Booth, No. 1230, Tool Engineers' Show, Chicago, March 17 through 21, inclusive.

PATENTS PENDING

INDUSTRIAL FILTRATION COMPANY BOX C-252 **LEBANON, INDIANA**

Ideally Tooled

for Ordnance today... with a weather eye open for quick changeover later

First and foremost, machine tools are dedicated to defense production... but there's every reason why skilled designers should also look to the future. Bodine automatic, dial type machines are constructed basically to produce *more* in a *shorter time*... to give every operator the highest production, with precision automatically controlled. Yet a simple changeover of tooling when the time comes will convert them for highly profitable industrial production of the same nature.

For instance, this Bodine NO. 42-30 is tooled to produce an ordnance component, but it can just as well be adapted for any combination of Milling, Drilling, Tapping, Screw Inserting, Staking, or assembly operations... for processing thousands of parts for industry.

If you need equipment for high speed, repetitive processing, ask Bodine engineers for specific recommendations.

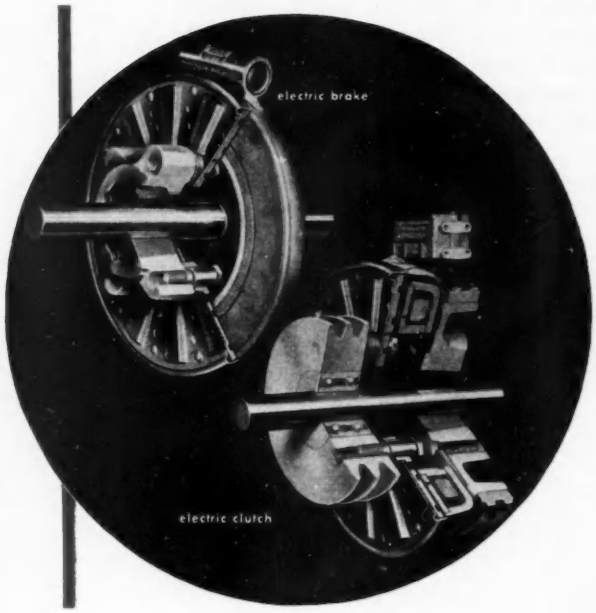
"You Can't Meet Tomorrow's Competition With Yesterday's Machine Tools."

THE **Bodine** CORPORATION
BRIDGEPORT 5, CONNECTICUT
AUTOMATIC DIAL TYPE DRILLING, MILLING, TAPPING, AND SCREW INSERTING MACHINES

Easier operation, less servicing, easier assembly of electric brakes and clutches improve Barber-Colman machine design

WARNER
electric
motion control

- **gives quick, positive engagement of hob carriage slide under maximum loads—no creep**
- **eliminates coasting of rapid traverse motor**
- **provides compact, simple design —more economical installation**
- **increases productivity through pushbutton control and instant actuation—no waiting**
- **eliminates service calls for adjusting sensitive solenoids and complicated linkages**



NO clutch problem is more exacting than that of the Barber-Colman No. 16-16 Hobbing Machine. In cutting precision gears to accuracies of .0002", positively no "creep" in the feed clutch is acceptable. Before adopting Warner Electric Clutches, engineering tests proved their high torque provides foolproof, positive engagement, and more than the required safety factor—*even under overload.*

Improved design provides instant feed and inching of the carriage. Stops control the feed and rapid traverse electrically through limit switches. All movements are centrally controlled by pushbutton. To make operation even faster and more responsive to the operator, an Electric Brake is used on the rapid traverse. This small, compact unit stops the carriage instantly and smoothly—eliminates coasting.

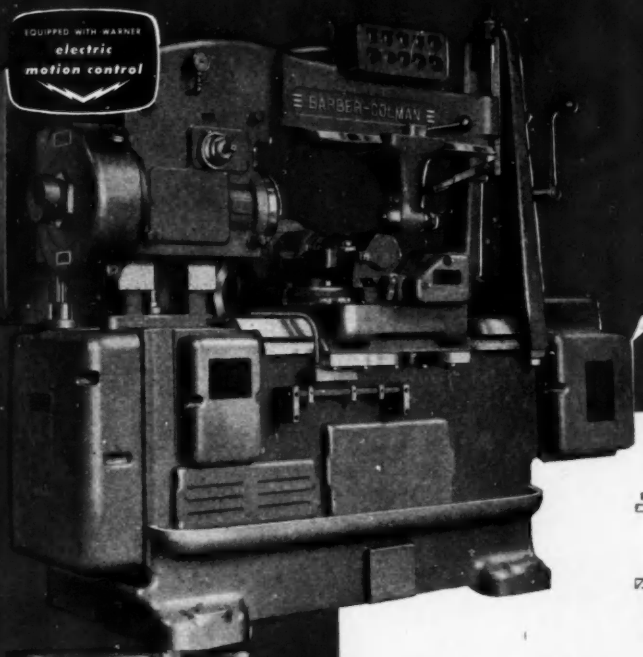
High heat dissipation rate and compact assembly of Warner units permit enclosure for improved styling. Simplicity of installation reduces assembly costs . . . simplicity of design eliminates service calls to adjust sensitive solenoids and complicated linkages.

If you have a braking, clutching, tensioning, indexing or speed control problem, send for information on lightning fast, simple, easily controlled Warner Electric Brakes and Clutches; or, better yet, ask for a demonstration by your nearby Warner representative.

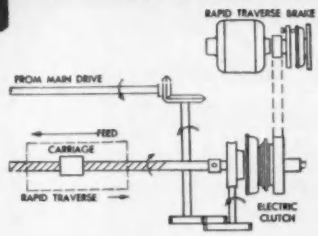
WARNER

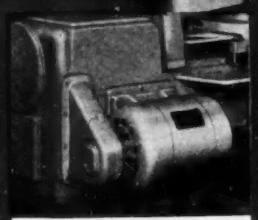
ELECTRIC BRAKES & CLUTCHES

FOR INDUSTRIAL APPLICATION



Compact feed box houses rapid traverse drive sprocket, electric clutch and feed screw worm and gear.





Rapid traverse brake and sprocket are enclosed in chain guard.

Power from the main drive of the Barber-Colman No. 16-16 Hobbing Machine is synchronized through change gears for rotating the hob, indexing the work and feeding. Warner Electric Clutch engages power from feed gears through a worm and worm gear to the feed screw. Warner Electric Brake stops the rapid traverse drive.

WARNER electric brakes, clutches and clutch-brakes are surprisingly simple in design and operation. There are only two main parts, a magnet and armature. Electro-magnetic engagement and release of these parts is the only mechanical movement required (less than ¼"). That's why operation is so fast and foolproof. Torque ratings are high, making a sure, positive engagement. Slipping and coasting are eliminated. Easily designed into original equipment, Warner units are readily adapted to automatic cycles and remote control. Rate of application can be controlled accurately—there is no shock to machine members . . . no thrust on bearings . . . no wear adjustment or loss of torque.

COMPLETE ENGINEERING SERVICE. . . Warner offers complete application and design engineering service and field assistance. If you have a clutching, braking, tensioning, indexing or speed control problem, consult competent, experienced Warner brake and clutch specialists for reliable recommendations on torque, heat, electrical controls, capacity, etc.

FREE DEMONSTRATION

Test the high torque, instant speed and zero of control of Warner Brakes and Clutches right on your machine. Phone nearest factory branch or send postcard for demonstration.

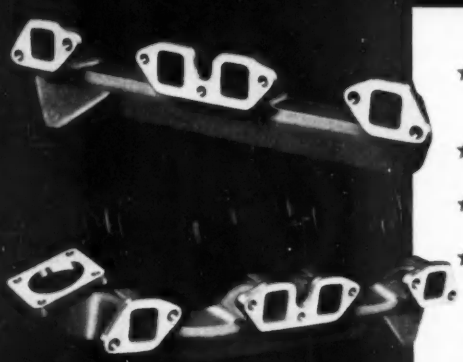
Warner Electric Brake & Clutch Co., Dept. A1, Beloit, Wis.
☐ **Please send your FREE Bulletin No. 703-A**
☐ **Would like to see demonstration**

OUR 25th YEAR

Firm Name_____
Individual_____ **Title**_____
Address_____
City_____ **State**_____

Another Special by Cross

Mills, Drills Bores, Chamfers and Taps Exhaust Manifolds



★ Mills and drills mounting face; mills, bores, drills and taps tail pipe pad on 120 exhaust manifolds per hour at 100% efficiency.

★ Right or left hand parts machined without changing setup.

★ Six stations—one for loading, two for milling, two for drilling and boring, one for tapping.

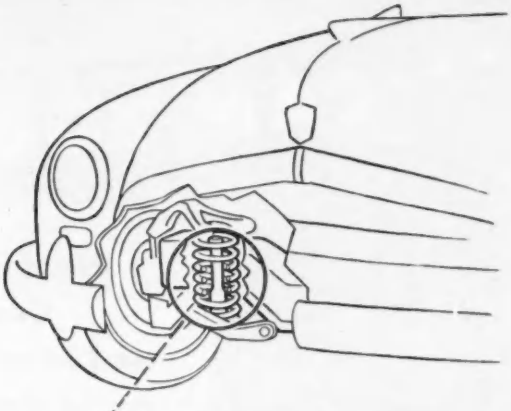
★ Other features: Power indexing; hydraulic feed for milling, drilling and boring; individual lead screw feed for tapping; hardened and ground ways; JIC standard construction; pre-set tools.

Established 1898

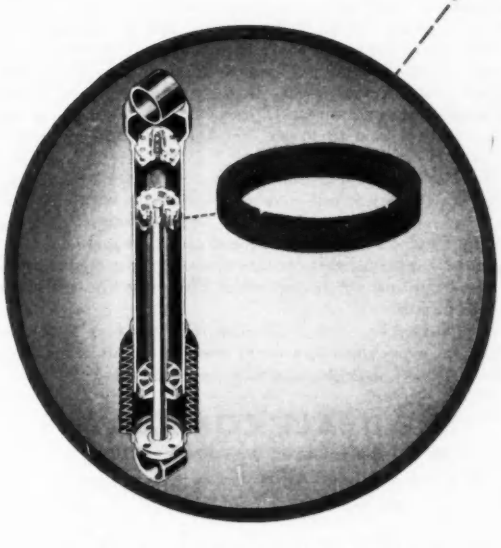
THE CO.

DETROIT 7, MICHIGAN

Special MACHINE TOOLS



Du Pont nylon part functions as automatic thermostat



Columbus shock-absorber piston ring molded for Heckethorn Manufacturing and Supply Company, Littleton, Colorado, by Formold Plastics, Inc., Chicago.

Nylon piston ring controls flow of fluid in new hydraulic shock absorber

When engineers set out to design this shock absorber, they were faced with the problem of regulating the proper flow of hydraulic fluid under all temperature changes. The problem was solved by installing a piston ring molded of Du Pont nylon. Called a "thermo ring," this key part actually functions as a thermostat, automatically controlling the flow of fluid at any temperature.

The nylon "thermo ring" is fitted to the assembly, which includes rebound and compression valves. These valves control flow of fluid through the piston. The "thermo ring" not only permits oil to flow both around and through the hydraulic piston—thereby providing the necessary damping action—but it also regulates this oil flow during extreme changes in temperature.

Du Pont nylon is unaffected by abrasion and organic solvents . . . as well as by the 205°F. maximum operating temperature of the shock absorber. It has the toughness to withstand the 200-lb. maximum pressure build-up of the shock. Exhaustive tests were made prior to the specification of nylon for the "thermo ring." It was found that no other material investigated had the combination of properties necessary to achieve the results obtained with molded Du Pont nylon.

Perhaps nylon's strength, resiliency and other valuable properties can help improve or develop a product for you. For further information on nylon and other Du Pont plastics, write;

E. I. du Pont de Nemours & Co. (Inc.)
Polychemicals Dept., District Offices:
350 Fifth Avenue, New York 1, New York
7 S. Dearborn St., Chicago 3, Illinois
845 E. 60th St., Los Angeles 1, California

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY
Polychemicals
DEPARTMENT
PLASTICS • CHEMICALS

. . . CAN YOUR SURFACE

"Our DoALL Grinder is 50% faster than previous machine and tool life is increased 30% because of better finish", says Rational Corporation, Milwaukee, Wisconsin.

Rigid DoALL Surface Grinders Can Take Heavier Cuts and Produce Precision Work Faster

TRY THE TEST illustrated at the right. Take the heavy cut, reverse the crossfeed and let the wheel run back over the ground surface. If it sparks it is grinding again, showing that the wheel didn't take the full depth of cut on the first pass. If it is a DoALL Grinder it won't spark; in fact, if you stop the work under the wheel and shut off the motor the wheel will coast to a stop without touching the work surface.

Now, pencil mark the work surface. Lower the wheel .0001", start the grinder and the wheel will erase the pencil mark.

There is proof of the rigidity and precision of a DoALL Grinder! There is why it will do a given job in less time. You can take a heavier cut without "give" in the spindle or the table. The wheel doesn't climb over the work piece—it cuts true in one pass. There is no back-lash, slop or hang-up in the vertical column—you can control the vertical feed to lower the wheel as little as .0001" even after a heavy cut.

And, with DoALL "Cool-Grinding"* you can take full advantage of this rigidity and precision—take the heavier cuts without burning the work—get a better finish and sharper edges. Coolant flows in at the hub, *through* the wheel and out *at the point of contact* in a fine mist. There is always coolant where the heat is generated, unlike flood cooling where the wheel blasts the coolant away from point of contact.

There is a DoALL Surface Grinder with hand or hydraulic crossfeed for every toolroom or production requirement. Call your local DoALL Sales-Service Store today or write:

THE DoALL COMPANY

254 N. Laurel Ave., Des Plaines, Illinois

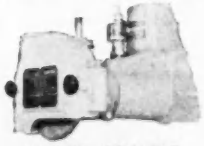
35 Local Sales-Service Stores in North America

* U.S. Patent No. 2470350. Available as extra equipment on all DoALL Surface Grinders.

GR-6

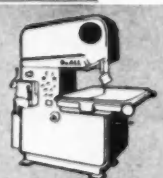
HERE'S WHY DoALL PRECISION HYDRAULIC SURFACE GRINDERS ARE FASTER, MORE RIGID, MORE ACCURATE!

MASSIVE FRAME—column support and base are single-piece chrome nickel steel casting, strongly ribbed for great rigidity.

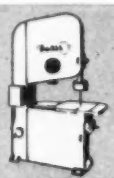


HUSKY SPINDLE SUPPORT, dowelled and bolted to column, prevents wheel from chattering or springing away from work.

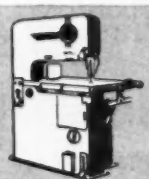
VERTICAL FEED IN INCREMENTS OF .0001"—made possible by ridigity and precision of extra-long 30" column.



CONTOUR-MATIC



ZEPHYR

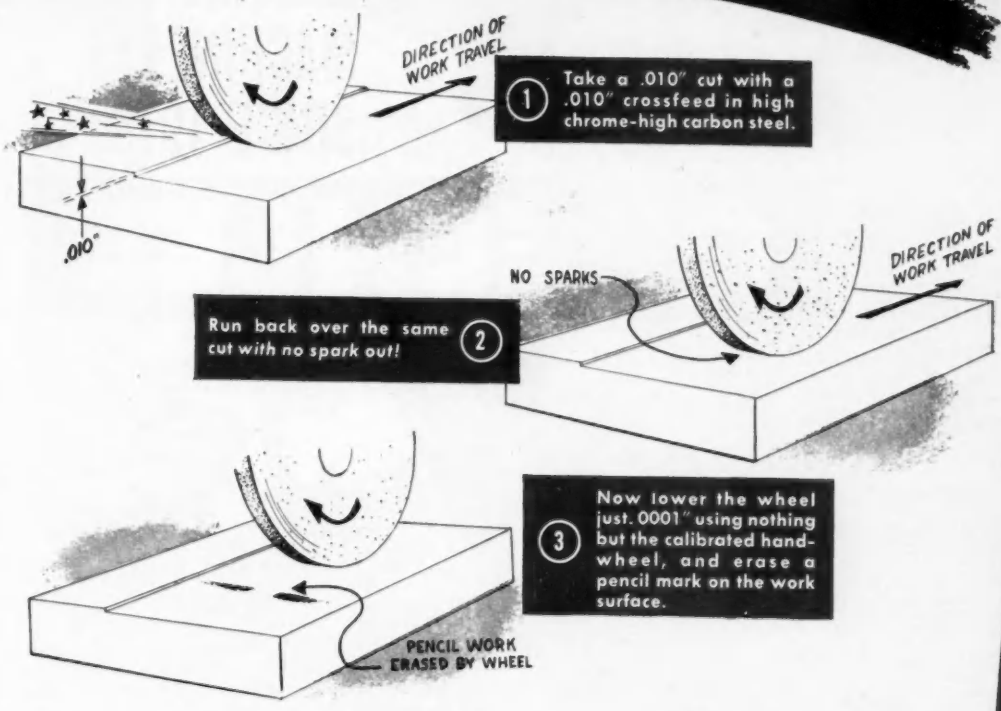


CONTOUR

BAND FILER

SAW BANDS

GRINDERS DO THIS?

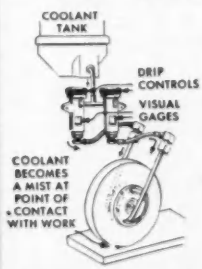


1. Take a .010" cut with a .010" crossfeed in high chrome-high carbon steel.

2. Run back over the same cut with no spark out!

3. Now lower the wheel just. 0001" using nothing but the calibrated hand-wheel, and erase a pencil mark on the work surface.

You can see the above test as part of a complete demonstration of a DoALL Precision Surface Grinder right in your own plant, without cost or obligation. Call your local DoALL Sales-Service Store today.



"COOL-GRINDING" ATTACHMENT—reduces cutting temperature as much as 400°F; prevents burning, warpage, checking, skin softness.

FULL HYDRAULIC *DRIVE* of table and crossfeed, not merely a hydraulic *control* of a mechanical drive. Smoother, longer-wearing, quieter; more uniform motion for smoother finish, greater precision.

DoALL

Ask for Descriptive Bulletin

TOOLROOM GRINDER

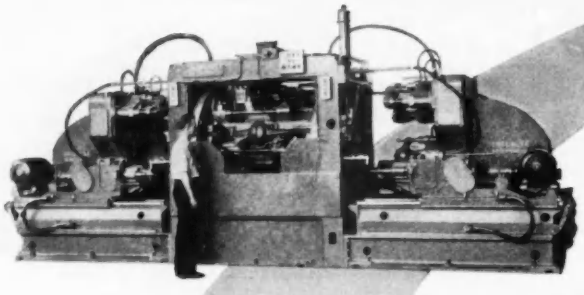
CRUSH GRINDER

GAGING EQUIPMENT

MONOLITE

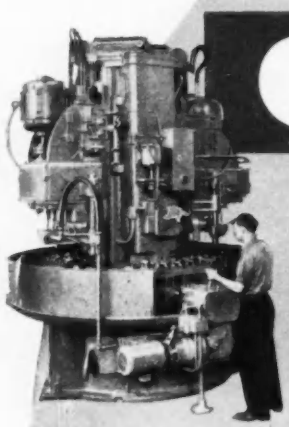
MOBILE INSPECTION UNITS

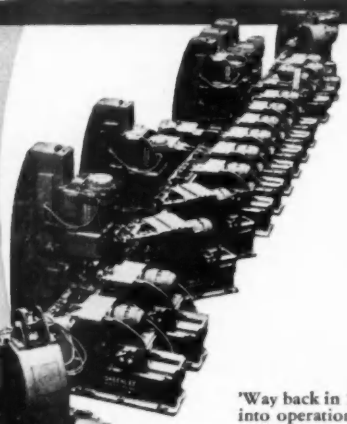
TOOL STEEL

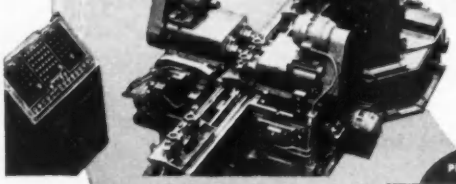


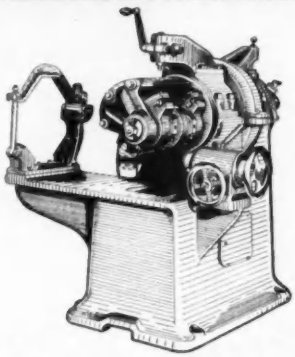
BUILDERS OF SPECIAL MACHINERY SINCE 1918

GREENLEE







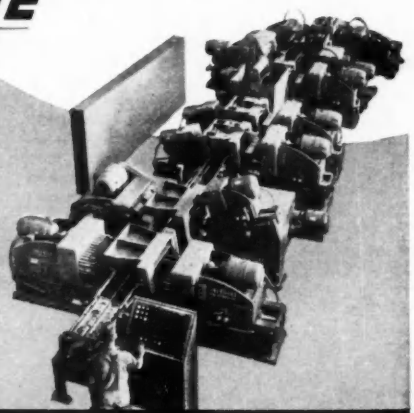


'Way back in 1918, the first Greenlee Special Machine went into operation in the tractor plant of a now famous automobile manufacturer (who still makes tractors). We've made a lot of machines since then, from small, special purpose machines performing only a few operations to huge transfer machines employing several hundred tools working in automatic, unvarying cycles. We're still making special machines . . . and constantly developing new methods for faster, cheaper production processes.

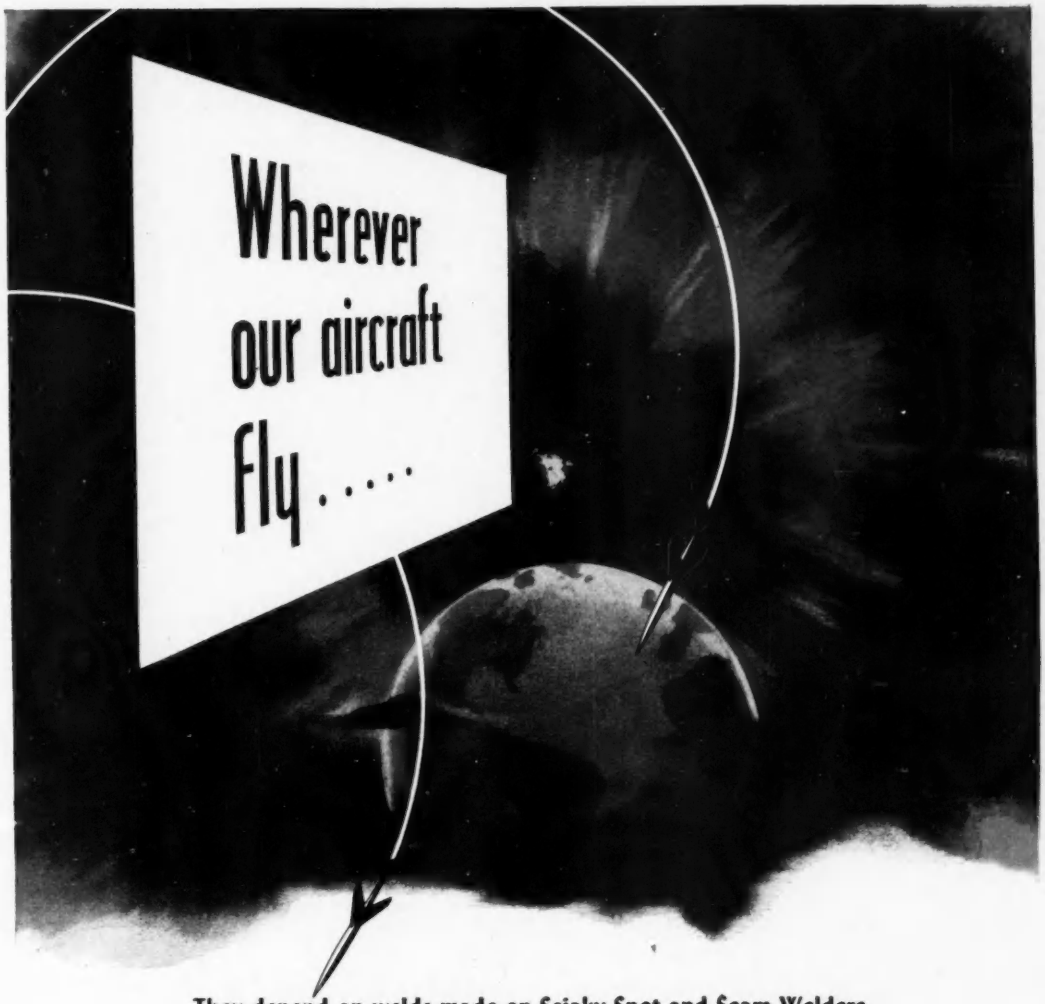
PRODUCTION MACHINERY

GREENLEE

GREENLEE BROS. & CO.,
1753 MASON AVE., ROCKFORD, ILL.



MULTIPLE-SPINDLE DRILLING, BORING, TAPPING MACHINES • AUTOMATIC SCREW MACHINES • AUTOMATIC TRANSFER PROCESSING MACHINES



They depend on welds made on Sciaky Spot and Seam Welders

Over 90% of all aircraft welding to military specifications is done on Sciaky Machines. The preference for Sciaky Machines is the BEST PROOF of the quality of Sciaky Equipment.

"See Sciaky for Quality"

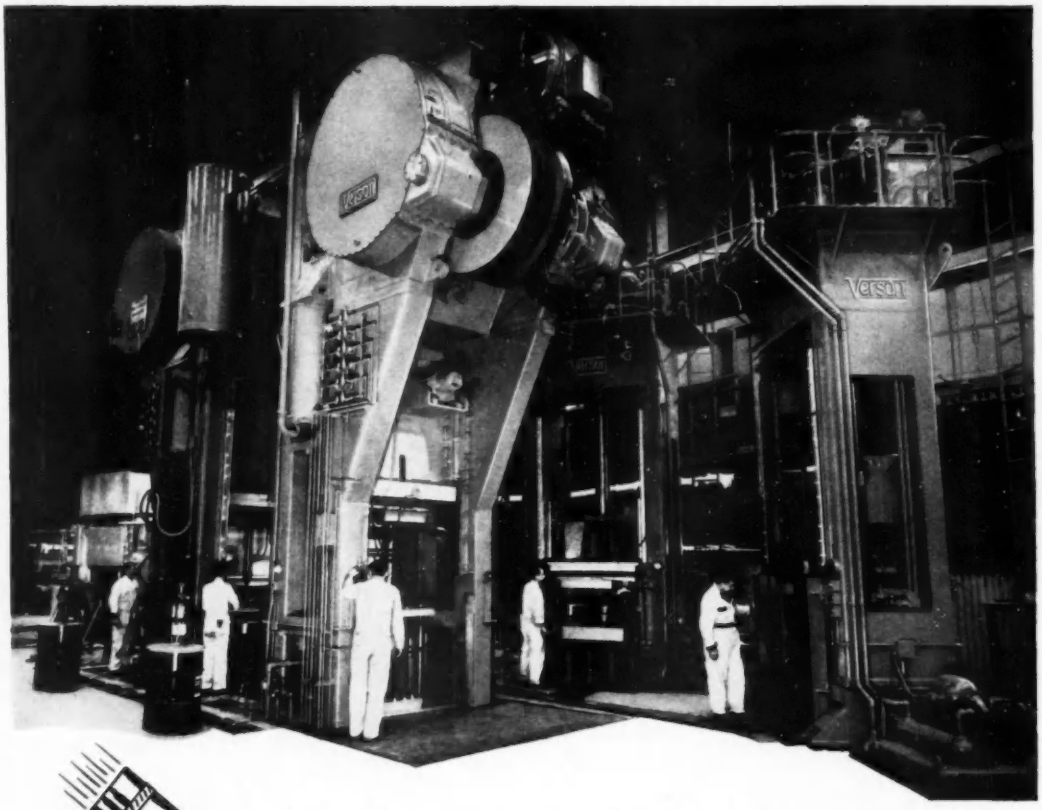
SCIAKY

4915 West 67th Street, Chicago 38, Illinois
Plants at
CHICAGO • LONDON • PARIS

the largest resistance welding machine manufacturers in the world

THIS Verson AUTOMATIC TOOL-UP

speeds production of large caliber projectiles



IN a tool-up developed by Verson and consisting of Verson presses and tooling, 90, 105 and 120 mm. projectiles are produced automatically from billet to finished forging. Production is increased 25% over previous methods; skilled manpower requirements are reduced substantially; material consumption is cut 15% resulting in big reductions in machining time.

When the photograph reproduced above was made, the tool-up was in the process of being set up. Completed, the tool-up incorporates conveyors for automatic handling between operations and automatic handling in the press.

This tool-up illustrates how Verson engineering can speed production and cut the cost of vitally needed defense materials. We will be pleased to send you additional information on this projectile tool-up or to discuss your needs with you. Write or phone.

See a pictorial display of this projectile tool-up at the Verson booth at the Tool Show in Chicago, March 17-21. Samples of the forgings will be available for your examination.

Originators and Pioneers of Allsteel Stamping Press Construction

VERSON ALLSTEEL PRESS COMPANY

South Kenwood Avenue, Chicago 19, Illinois — **So. Lamar at Ledbetter Dr., Dallas 15, Texas**

A VERSON PRESS FOR EVERY JOB FROM 60 TONS UP

MECHANICAL AND HYDRAULIC PRESSES AND PRESS BRAKES • TRANSMAT PRESSES • TOOLING
DIE CUSHIONS • COMPRESSION AND TRANSFER MOLDING PRESSES

FIND TOOL STEELS HARD TO GET?

STRETCH WHAT YOU HAVE WITH

DISSTON "FIGHT WASTE" PROGRAM

In spite of the best efforts of the steel industry . . . in spite of above-capacity steel production — tool steels remain in short supply and are getting more so every day!

The Disston "Fight Waste" Program can help you stretch the supply of tool steels you now have . . . can help you do more with the steels you are now using. Basis of the "Fight Waste" Program is the use of individual instruction cards on six basic types of tool steels. These cards contain information on the selection, working, and application of tool steels to help you get better tool performance and longer tool life—to help cut waste of vital steels.

DISSTON SUPPLIES THESE CARDS FREE — WITHOUT COST OR OBLIGATION — IN QUANTITIES DESIRED. ORDER BY NUMBER

No. S-1 HIGH SPEED STEEL, TUNGSTEN-MOLYBDENUM TYPE
(Comparable to DISSTON 6-N-6)

No. S-2 WATER-HARDENING CARBON OR CARBON-VANADIUM TOOL STEEL
(Comparable to DISSTON Best Tool or Vatool Steel)

No. S-3 AIR-HARDENING HIGH-CARBON HIGH-CHROMIUM STEEL
(Comparable to DISSTON Croloy)

No. S-4 OIL-HARDENING TOOL STEEL
(Comparable to DISSTON Mansil)

No. S-5 CHROME-TUNGSTEN CHISEL STEEL
(Comparable to DISSTON Keystone)

No. S-6 NICKEL-CHROME, OIL-HARDENING TOOL STEEL
(Comparable to DISSTON Nicroman No. 827)

Disston also has "Fight Waste" instruction cards covering a wide variety of wood and metal cutting *tools*. These cards provide specific information on the most efficient use and care of tools to reduce breakage, stop waste of material, and increase production. We'll be glad to send you complete information. Use the coupon below.

CLIP AND MAIL TODAY

HENRY DISSTON & SONS, INC.
331 Tacony, Philadelphia 35, Pa., U.S.A.

Please send me the following: (Check)

FIGHT WASTE Cards

No. S-1 ..... No. S-3 ..... No. S-5 .....
No. S-2 ..... No. S-4 ..... No. S-6 .....

.. Information on Wood- and Metal-Cutting Tool Cards
.. Copies of Steel Scrap Folder

NAME .....
ADDRESS .....
CITY ..... ZONE .... STATE .....
COMPANY ..... POSITION .....

NEEDED:

HALF A TON OF SCRAP FOR EVERY TON OF STEEL

An opportunity for every plant to help "Fight Waste": Record-breaking steel production and continued large-scale expansion of productive capacity have forced the scrap inventories of American steel mills to dangerously low levels. It is absolutely vital to the continued production of steel—*to your supply of steel*—to increase the flow of scrap to steel mills.

FREE FOLDER—sent on request! A special Disston folder on steel scrap: tells what types of scrap are needed . . . how to organize your plant for scrap salvage . . . where to sell your scrap. Disston will supply you with as many of these folders as you need...FREE!

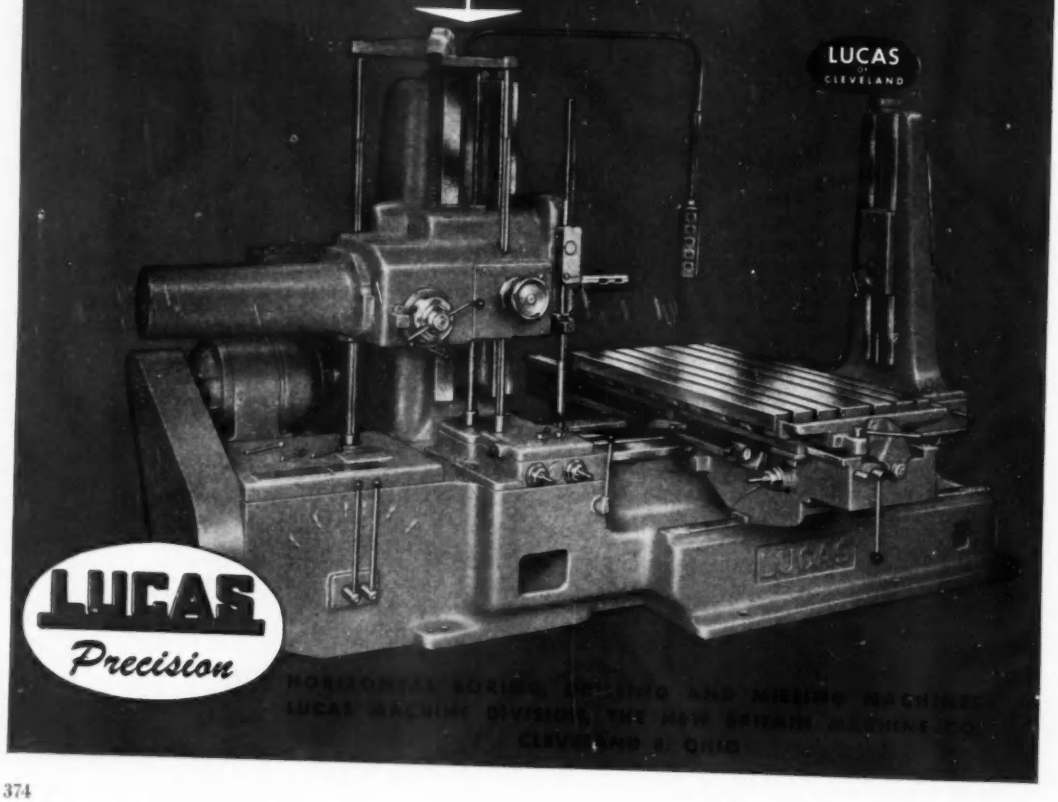
SCRAP TURNED IN . . . IS STEEL TURNED OUT!

HENRY DISSTON & SONS, INC.
1120 Tacony, Philadelphia 35, Pa., U.S.A.

These *Big improvements* in boring machines have been Lucas features *for years*

Every advancement of importance to be found in any boring mill is obtainable in a Lucas. In many cases Lucas has been years ahead and some very important developments can be found *only* in Lucas machines. Fifty-one years of specialization on one product has made Lucas the first name in its field.

- Automatic power positioning
- Integrally cast four way box with 4 point support
- Complete range of feeds and speeds to suit spindle
- Pendant control
- Vibrationless V-belt drive to spindle at high speeds
- Complete line of attachments
- Hardened ways
- Chrome plated lead screws



LUCAS Precision

HORIZONTAL BORING, DRILLING AND MILLING MACHINES
LUCAS MACHINE DIVISION, THE NEW BRITAIN MACHINE CO.
CLEVELAND 2, OHIO

the STETSON is part of the man

JOHN B. STETSON COMPANY
PHILADELPHIA 22, PA.

Mr. C. C. Lucas
Howell Electric Motors
Broad Street Suburban Station
Philadelphia, Penna.

Dear Mr. Lucas:

It is not every day these days that a buyer can express his thanks and appreciation to a vendor for prompt compliance with scheduled delivery dates.

I want to do just that to you and, through you, to the Howell Electric Motors. While I am at it I wish to mention, also, that we are very pleased with the quality of workmanship and cleanness of design of your motors. Because our own product owes its national eminence to quality, we feel peculiarly fitted to recognize that standard in others.

With appreciation for your individual interest and the valuable cooperation of your factory, I remain

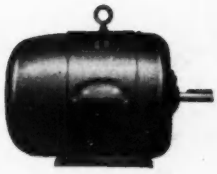
Yours very truly,

A. Kennedy, Jr.
Plant Engineer

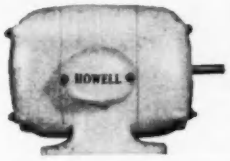
AKjr/sc

MORE PEOPLE WEAR STETSON HATS THAN ANY OTHER BRAND

HOWELL MOTORS are part of the STETSON



HOWELL Type K Motor. Offers constant performance in the presence of dirt, dust, fumes and moisture. Sizes from 3 to 150 H.P. at 1800 R.P.M. Either vertical or horizontal mounting.



HOWELL Sanitary Motors meet the most exacting standards of the dairy and food industries. They contain no pockets, cracks, or crevices. Available for vertical or horizontal mounting.

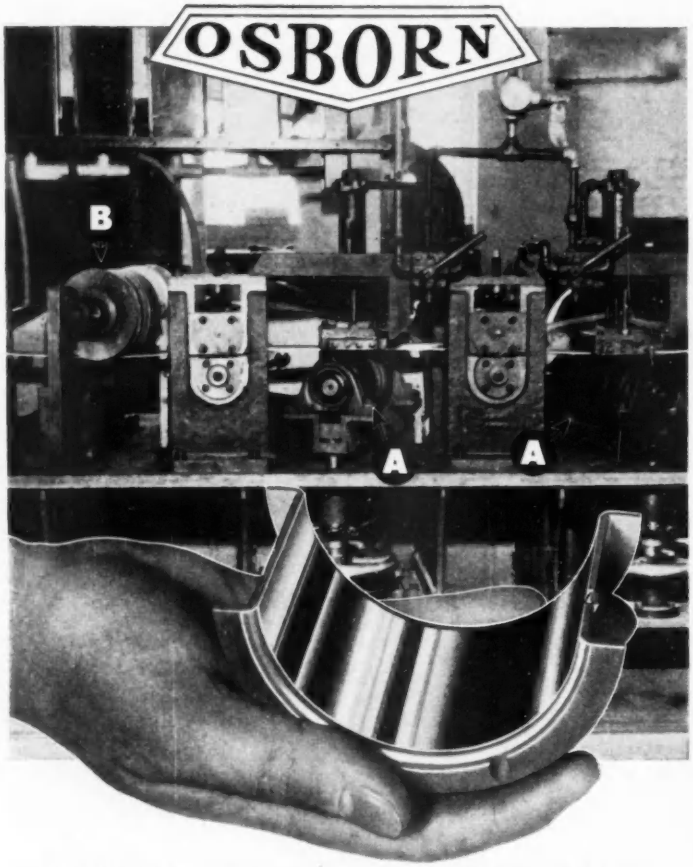
We think you, too, will appreciate Howell's attention to your electric motor problems. Howell engineers are always ready with technical assistance on motors in the standard NEMA frame sizes or with specially designed motors if your situation requires them.

So, on the tough jobs, on every job, consult Howell — manufacturers of industrial type motors from 1/6 to 200 H.P. since 1915. Contact the Howell representative in your city or write to us direct.

OWELL Red Band MOTORS

HOWELL MOTORS

HOWELL ELECTRIC MOTORS CO., HOWELL, MICH.
Precision-built Industrial Motors Since 1915



Will "automatic" ideas like these cut your costs?

THIS machine does two jobs at one time . . . does them thoroughly by power brushing . . . at the push of a button.

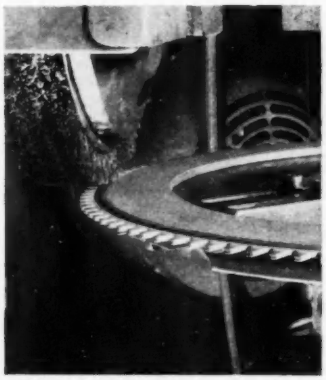
Perhaps a similar brushing method can help cut *your* costs, boost *your* production and improve the quality of *your* products.

The machine developed with the help of the **O**sborn **B**rushing **A**nalyst cleans steel-backed, babbitt-lined strip for production of automotive sleeve bearings. With the strip traveling continuously, Osborn Master Wheel Brushes (A) remove all dirt, rust and metal particles from the steel surface. Osborn Monarch Sections (B) then thoroughly clean the babbitt side.

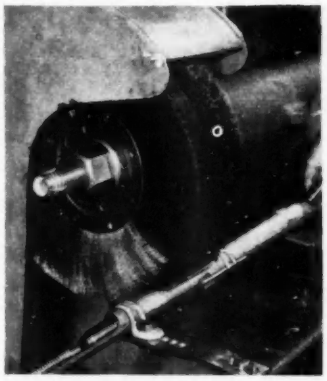
This is typical of the cooperation which your **O**sborn **B**rushing **A**nalyst can give *you* to solve problems of product cleaning, burr removal, roughing, polishing and finishing. For help, call or write *The Osborn Manufacturing Company, Dept. 661, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

Osborn Brushes

OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES



SAVES 12 MEN. This is one station of a five-station rotary automatic machine equipped with Osborn power brushes that removes burrs and sharp corners of clutch disc teeth. Formerly done by hand. Saves 12 skilled men.



9 TIMES AS FAST. This simple pipe fixture provides the means of cleaning threads of set screws. Can be applied to many cylindrical parts. Time was cut from 18 seconds to 2 seconds with this Osborn brushing idea.

10 TIMES AS FAST. This shows two gears before and after deburring by a new Osborn power brushing method. Note smooth uniform results. Time was cut from 3 minutes to 18 seconds.

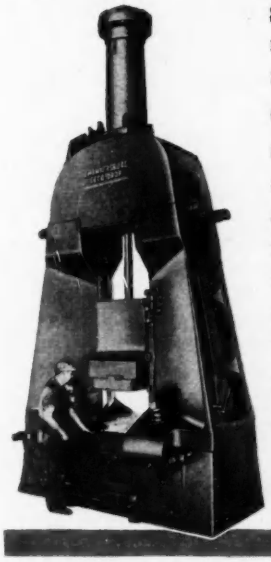
FORGING

most ancient of the mechanical arts

. . and the most modern

SINCE earliest times the hammering of hot metal has been recognized as the surest way of increasing the inherent strength of the metal and giving it added toughness.

Today, with speeds, pressures, stresses and strains to almost unbelievable limits, the importance of greater strength and toughness in metal parts is magnified immensely.



Chambersburg Hammers are at work in thousands of plants, imparting that added strength and toughness to the metal parts that make up our defense mechanisms as well as to the metal parts that make up such a large part of our peace-time economy.

PYTHAGORAS AND THE FIVE HAMMERS

IT is related that Pythagoras, greatest of the Greek scientists, who was born about 570 B.C., was working on his theory of the musical scale when he passed a blacksmith shop. The musical chime of the hammers gripped his attention. He went in the shop and found five smiths working. "Might he weigh their hammers?" He did so, finding four of them in the proportions of 12, 9, 8 and 6. (The fifth, which had been spoiling the harmony of the chime, bore no musical relation to the rest.) From this, the great Ionian scientist worked out his theory of the fixed notes in the musical scale.

The modern forging hammer is no musical instrument and the chime of hammer and anvil is still confined to the blacksmith shop, but the strengthening effect of hammering on metal is as true today as in Pythagoras' time.

CHAMBERSBURG ENGINEERING COMPANY
Chambersburg Pennsylvania

CHAMBERSBURG

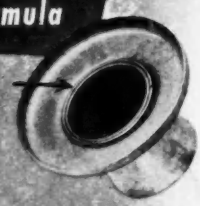
THE HAMMER BUILDERS

GEAR CUTTING
GEAR TOOLS
"COORDINATED GEAR PRODUCTION"
the simple road to better gears at lower cost
GEAR LAPPING
GEAR CHECKING
TOOL CHECKING
GEAR SHAVING

The Passkey to TOP BRAZING PRODUCTION to BOTTOM BRAZING COSTS

EASY-FLO

Typical Application of the Easy-Flo Brazing Formula



1. THE ASSEMBLY

A steel tube and a steel stamping with a ring of 3/64" EASY-FLO45 wire *pre-placed* as at right.

2. THE FAST HEATING METHOD

In this case it's gas-air in 2 parallel rows of burners.

3. THE PRODUCTION SET-UP

A motor-driven endless chain which travels between the rows of burners. Operator assembles parts on jigs on the chain, preplaces the EASY-FLO rings and applies Handy Flux. Vertical pins support and position stamping on tube. Rack engages teeth on jigs and rotates them for uniform heating. Close-up shows construction. Chain speed is timed for proper heating. Finished assemblies drop off into quenching tank.

RESULTS

225 assemblies per hour, beautifully brazed—with the human element entirely eliminated from the actual brazing.

If you need *more* joints per hour—if you need *better* joints—if you need to *cut costs*—you can open the doors to all three with EASY-FLO—the low-temperature silver brazing alloy.

You simply apply the 3-part EASY-FLO brazing formula—(1) *preplace* the alloy—(2) use a *fast* heating method—(3) devise a set-up that will keep assemblies on the move to and through the heating zone. At left is a typical example.

A BRAZING EXPERT IS AT YOUR CALL

We'll be pleased to send a Field Engineer to your plant to help you apply the EASY-FLO formula to your brazing needs. *There's no cost or obligation*—so, why not get the benefit of this man's wide production brazing experience. Just contact our nearest office or dealer and say when you'd like him to call.

See this set-up in action at the ASTE EXPOSITION—Chicago

It's an eye-opening demonstration of simplified production brazing you won't want to miss . . . Also examine the many other examples of EASY-FLO brazed parts from defense and domestic production . . . And watch the carbide tipping of cutting tools by the fast, economical EASY-FLO brazing process . . . Discuss your metal joining problems with our experienced engineers

—BOOTH 1818

GET THE WHOLE AMAZING EASY-FLO BRAZING STORY IN BULLETIN 20 . . . *Learn why strength, speed and low-cost are inherent in EASY-FLO brazing. Write today for a copy of this informative 24-page bulletin.*

HANDY & HARMAN

FOUNDED 1867 — QUALITY SERVICE — ORIGINATORS OF EASY-FLO & SILFOS

HANDY & HARMAN

General Offices: 82 Fulton St., New York 38, N.Y.

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ECONOMY
Automatic Production
MACHINERY

For Operations on Cold Headed and Forged BOLTS, CAP SCREWS, LAG SCREWS, VALVES, AUTOMOTIVE PARTS AND SIMILAR PRODUCTS

TYPICAL OPERATIONS
Performed on ECONOMY Type 5000 Automatic Lag Screw Pointing and Threading Machine
Point, Gimlet Point And Cut Threads On Body
TYPICAL OPERATIONS
Performed on ECONOMY Type 3600 Automatic Shaving Machine
Shave Or Knurl Head
Cup And Point End And Chamfer
Shave And Neck Head
TYPICAL OPERATIONS
Performed on ECONOMY Type "PT" Automatic Pointing and Threading Machine
Hex Head Cap Screws
Head Bolts
TYPICAL OPERATIONS
Performed on ECONOMY Type 4500 and 3300 Automatic Pointing Machines
Square Head Set Screw Dog Point
TYPICAL OPERATIONS
Performed on ECONOMY Type 4300 Automatic Shaving Machine
Shave Head And Neck
Shave Head
Shave And Turn Small And Two Large Diam
Valve Seat And Grooves
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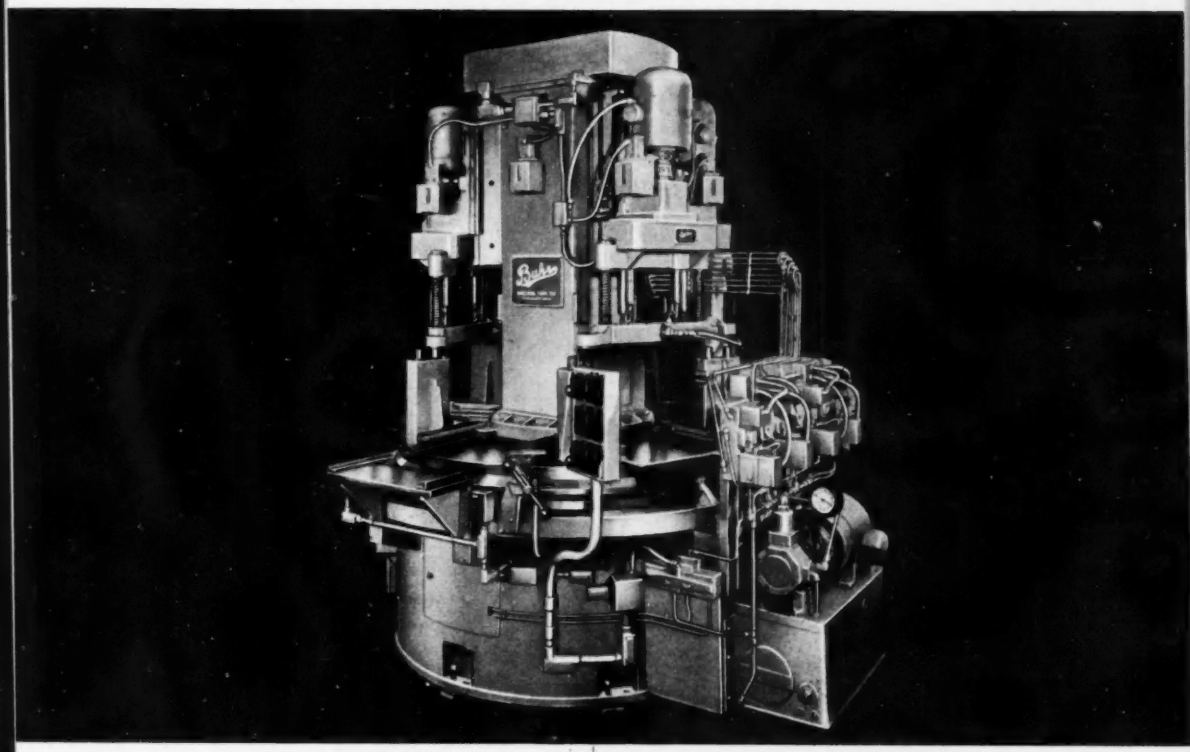
Consult ECONOMY First with Your Problems— New Advanced Units are Always Under Development

The ECONOMY *Engineering Co.*

WILLOUGHBY, OHIO

Designers and Manufacturers of Secondary Operation Machines . . . since 1915

THANKED FROM TOKIO TO TEMPLEHOF!



Aircraft Pilots . . . from Tokio Airport in Japan to Templehof Airdrome in Berlin . . . are grateful for such Production Stalwarts as this Buhr 5-Station Hydraulic-Feed Center-Column Special Machine . . . which is now working the clock around . . . helping to turn out Cylinder Heads for one of the world's largest manufacturers of aircraft engines—engines on whose reliability pilots consistently stake their lives! Is it any wonder that some of these pilots . . . who know the fundamentals of production . . . say "thanks" to such Special Machinery as this . . . for a job well done?

Aviation Industries Rely on Machinery Like This for Critical Production Work

For making such a critical product as a large aircraft engine, Uncle Sam chose one of the world's best-known engine manufacturers. Volume Production . . . of the highest quality . . . had to be set up as quickly as possible.

One of Their Problems

To drill and ream the holes in the Cylinder Heads of this particular aircraft engine—that was one of their problems.

To handle this important phase of their production, they called in Buhr.

What the Machine Does

In general—this Five-Station Hydraulic-Feed Center-Column Machine with 72" Automatic Index Table . . . drills and reams (6) holes in Rocker Arm Pockets in Cylinder Head of Aircraft Engine...handling four parts at a time.

Specifically, the Machine accomplishes this—

Station 1—Load and unload
Station 2—Drills (2) 1" dia. holes
Station 3—Drills (2) $^{23}/_{32}$" dia. holes
Station 4—Drills (2) more 1" dia. holes
Station 5—Reams (2) .750" dia. holes

PRODUCTION—50 parts per hour at 100% efficiency.

Why Buhr Was Chosen

In the Aviation Industry . . . as in many others . . . Buhr has served leading manufacturers for many years—some for more than a quarter-century! They have come to rely on Buhr whenever they need machinery for critical high-volume production. They know that Buhr has excellent manufacturing facilities . . . that their sales, engineering and production staffs are trustworthy and experienced, specialized in this kind of machinery, and available anywhere in the United States.

For Details About Buhr

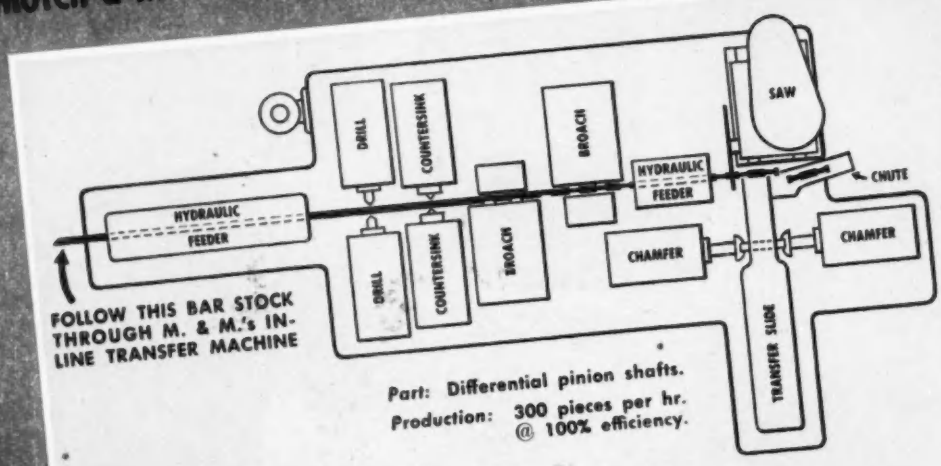
A comprehensive Catalog . . . or a personal call from a Buhr Sales Engineer . . . is yours for the asking. For every problem involving this type of Special Machinery—including the type that's "thanked from Tokio to Templehof"—phone, wire or write us.

BUHR MACHINE TOOL CO.
Ann Arbor, Michigan
Phone: Ann Arbor 2-5646—5980
Detroit WOodward 3-2126

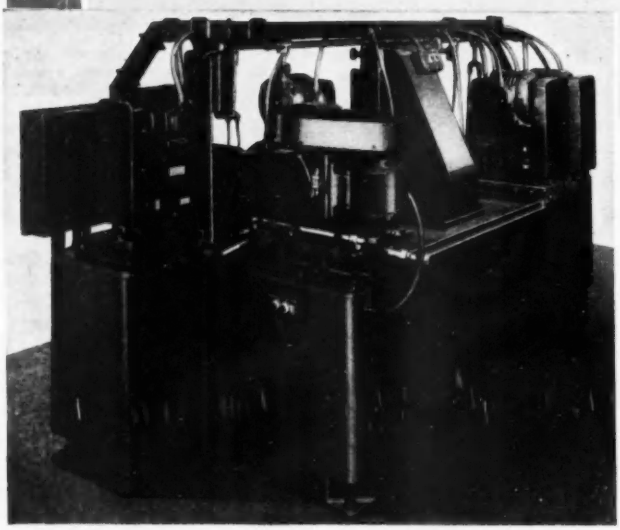
Buhr ***SPECIAL MACHINERY...Leaders Make Sure With BUHR***

Combine Operations on a

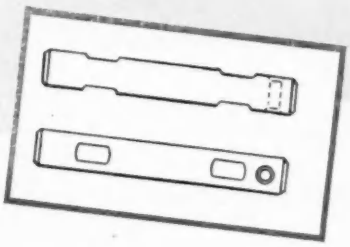
MOTCH & MERRYWEATHER Automatic IN-LINE Transfer Machine



Part: Differential pinion shafts.
Production: 300 pieces per hr. @ 100% efficiency.



Save time and floor space by combining operations.



● Many machining operations are combined on an M. & M. progressive IN-LINE automatic transfer machine. Stock is held *motionless*. Most of the operations are performed on a length of solid bar stock prior to cutting off. Using the progressive in-line principle, we can design a production machine for your individual requirements. Odd-shaped extrusions present no machining problem.

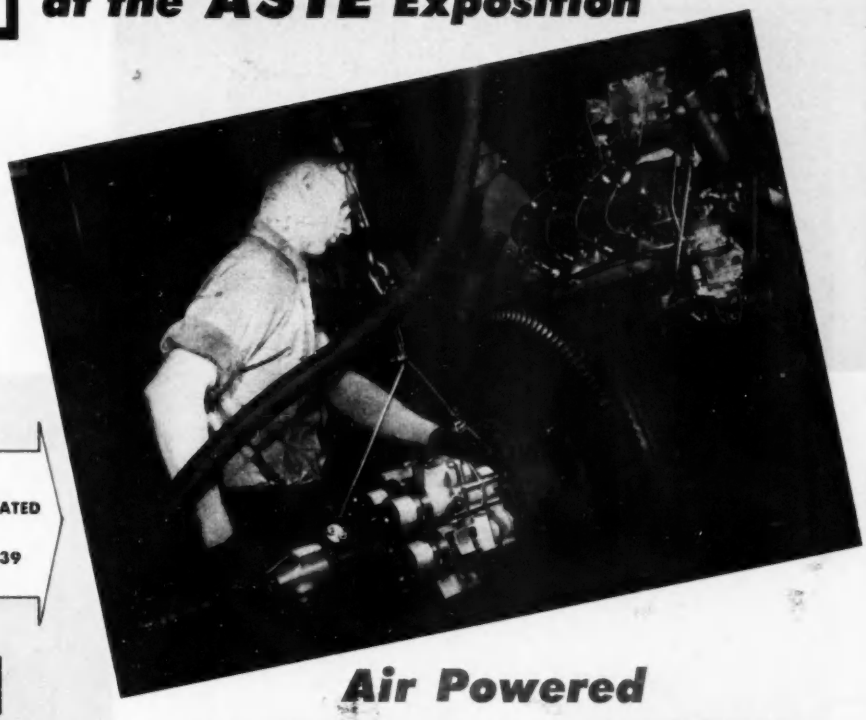
Send us your parts drawings.

Manufactured by

THE MOTCH & MERRYWEATHER MACHINERY COMPANY
715 PENTON BUILDING • CLEVELAND 13, OHIO
Builders of Circular Sawing Equipment, Production Milling, Automatic and Special Machines

PRODUCTION-WITH-ACCURACY MACHINES AND EQUIPMENT

IR presents . . .
at the ASTE Exposition



SEE IT DEMONSTRATED IN BOOTH 1639

IR

MULTIPLE NUT RUNNERS give you:

2 or more nuts driven at once . . . in the time formerly required to drive one.

•

Good "quality control" . . . Torque is uniform on each and every nut.

•

Safe Operation for operator . . . Torque reaction is non-existant.

•

Immediate on-the-job operation . . . No special training needed for the operator.

•

Low Maintenance . . . Units in service show maintenance savings up to 50%.

Air Powered
MULTIPLE NUT RUNNING
with "Quality Control"

For years multi-spindle machines have saved time and dollars . . . Now you can tool up for *multiple savings* with Ingersoll-Rand Multiple Nut Runners.

This latest and most important development in the field of production will be displayed and demonstrated at the ASTE Exposition in Chicago, March 17-23. Don't pass up this opportunity to get the complete story on this and many other advancements in the field of Air and Electric Tools—also Air Compressors.

Ingersoll-Rand

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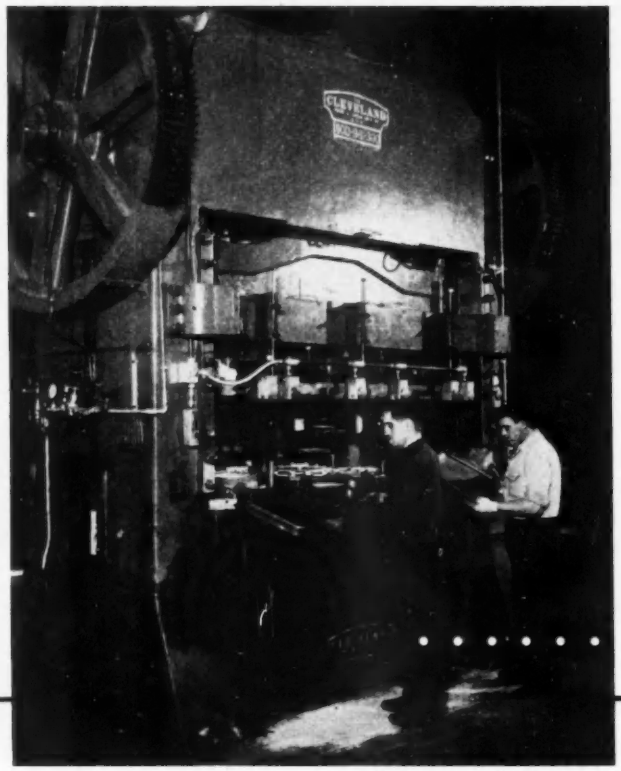
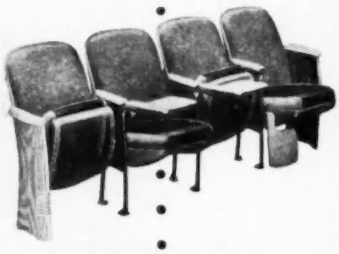
742-B

new CLEVELAND turns out 330 seats per hour for American Seating Co.





Photograph, courtesy American Seating Co.

At the Grand Rapids plant of American Seating Co. the Cleveland Double Crank Press shown here forms 330 folding chair seats per hour. Three progressive dies perform the trim, first and finish curl.

"The performance of our new 80-D-300 ton Cleveland has been completely satisfactory," states Mr. C. M. Highstrete, Plant Engineer. "Our Cleveland presses have given us excellent performance. Their sturdy construction has kept maintenance to a minimum. We have noticed no deflection under load and have experienced good and satisfactory die-life. Our new Cleveland Drum Type Clutch gives us positive control—has needed no major adjustment in over a year of operation."

Based on experience, American Seating Co. recently ordered more Clevelands.

Before you order your next press, study the advantages incorporated in every one of Cleveland's complete line of presses. Learn of the savings you can obtain with the new Cleveland Drum Type Friction Clutch and Brake.

THE CLEVELAND PUNCH & SHEAR WORKS CO. U.S.A.

Established 1880

PUNCHING TOOLS & DIES

FABRICATING TOOLS

POWER PRESSES

OFFICES AT: NEW YORK . . . CHICAGO DETROIT . . . PHILADELPHIA E. LANSING

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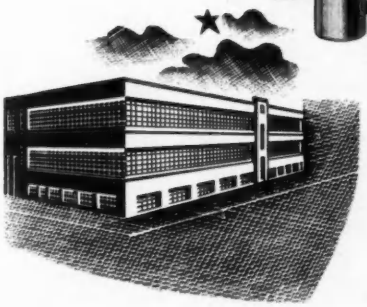
INDUCTION, DIELECTRIC & FOUNDRY
CORE BAKING EQUIPMENT



King Pin HARDENING at the rate of 750 per hour!

King Pin size, 5-5/16" x 13/16". Specified hardness, 59-60 RC, and a Case of .100 to .125 obtained automatically! Operation included injection, rotation, heating, water quenching and ejection. Production rate of 750 per hour is attained by above illustrated THER-MONIC Work Table, developed especially for Chrysler Corporation. It is hooked-up to a 50 K.W. Model 2800 THER-MONIC Generator.

For more than a decade, Induction Heating Corporation has been designing and building specialized heat treating systems for the automotive and metal working industries. Water and oil pump shafts, automatic transmission and starter shafts, etc.—in fact, any component that can be processed progressively or selectively—are now being more uniformly heat treated by THER-MONIC-devised Work Tables and Generators . . . in less time and at less cost, with unskilled manpower in a minimum of space.

Enlist the services of our engineering and laboratory staffs. They will be glad to apply their know-how to your brazing, hardening, forging and annealing problems. Inquiries invited!

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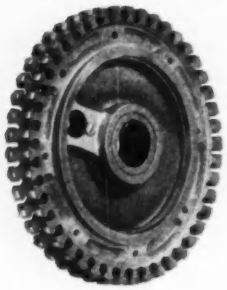
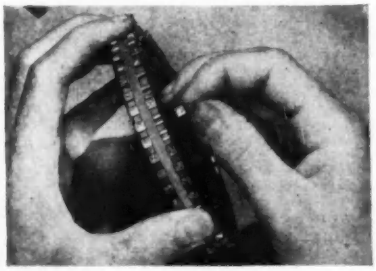
Largest Producers of Electronic Heat Treating Equipment

HOB *Special Forms..*

ALMOST ANY FORM, EQUALLY SPACED AROUND A CENTER, LENDS ITSELF TO HOBBING.



● Form accuracy of the slots is important to avoid any movement of type slugs. Location of each slot must be held precisely to provide accurate spacing of type characters.



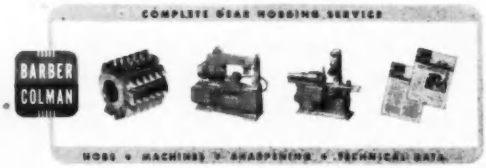
● Hob generates true straight and parallel sides with no taper and a maximum of .0005" undercut. Spacing accuracy of the machine holds the total accumulated spacing error for the 45 slots within the tolerance of .001".

Accurate Spacing Hobbing is the ideal method of producing accurate spacing because of the inherent accuracy in the generating process. Normal care in trueing the work and hob, plus adequate tooling and a machine in good condition, are all that are necessary to produce high quality work.

Fast Cutting Time Continuous indexing and generating action produce the completed form in one pass of the hob through the blank. On production jobs hobbing is considerably more efficient than methods which require individual indexing.

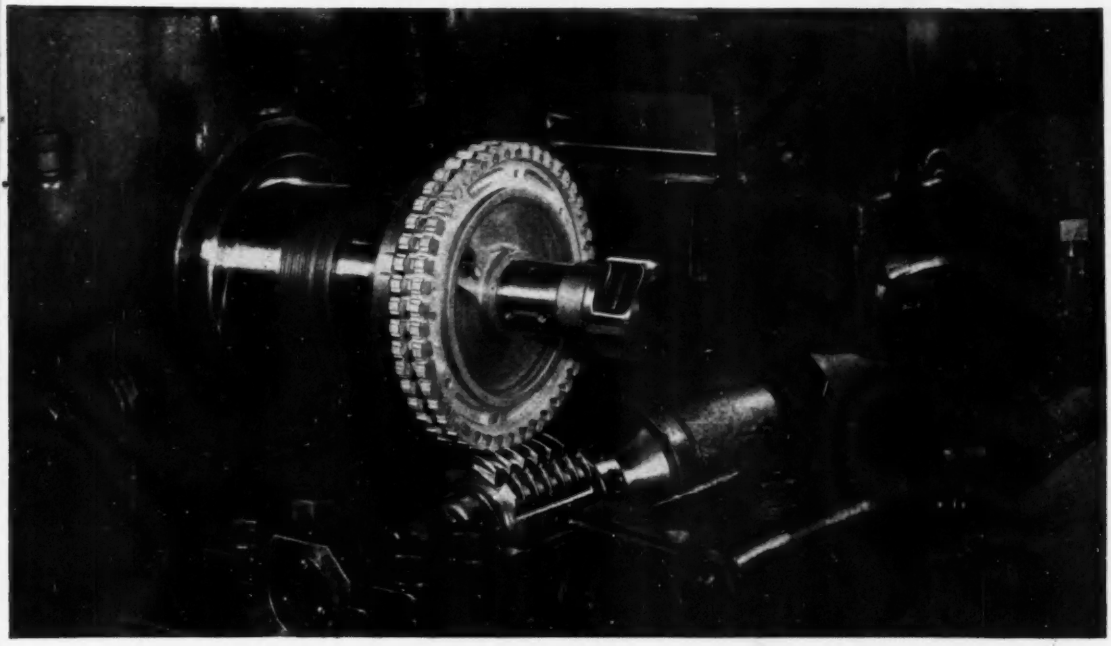
Increased Tool Life Hobbing produces this straight-and-parallel-sided form by generating action. This hob has form-relieved teeth, retaining size and form as the teeth are sharpened back. It can be used in several positions across its face prior to resharpening. As a result, hobbing produces more pieces per sharpening and greater tool life.

Ask Barber-Colman Engineers to discuss your Special Form Cutting operations, with the possibility of adopting the Hobbing Method for greater efficiency.



BUILDERS OF PRECISION GEAR

. . . *with* Barber-Colman
HOBS and MACHINES



● Prior to hobbing on No. 6-10 Barber-Colman Precision Hobbing Machine, the holes at the bottom of each slot are reamed in relation to the locating pin holes. The locating pin hole in the work is fitted on a pin in the work arbor of the machine. On the first cut the hob is located axially so that it will cut each slot in the proper position. After this first location, proper positioning is maintained by shifting full circular pitches until the hob is removed for sharpening.

TO IMPROVE ACCURACY, TOOL LIFE, PRODUCTION

CUTTING TIME REDUCED FROM 30 TO 12 MINUTES

This job history shows how improved accuracy of form and spacing, production and tool life can be obtained on special-form machining by using the hobbing method.

Machining time per wheel has been reduced from 30 to 12 minutes, hobbing on a No. 6-10 Barber-Colman Precision Hobbing Machine. Feed of .010″ per rev. and a hob speed of 309 RPM is used.

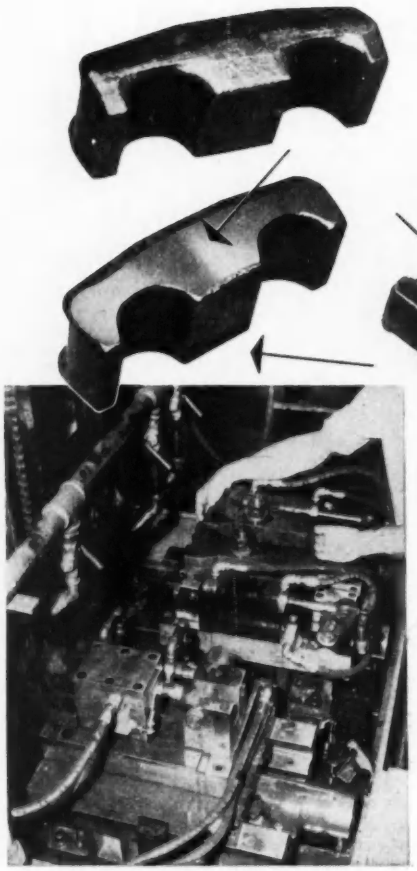
Tool life averages 195 pieces per sharpening of the hob.

Slots are held in relative location to the reamed holes, ±.0005″ in width, and with straight and parallel sides. No taper is allowed and undercut is held within .0005″. Equal spacing is maintained around the circumference with a total accumulated error of .001″ or less.

Barber-Colman Company

GENERAL OFFICES AND PLANT, 733 ROCK STREET, ROCKFORD, ILLINOIS, U.S.A.

HOBS AND MACHINES SINCE 1911



2 separate broaching operations on 1 machine speeds production of tank track parts

the *American* way broached these two sides and these two radii on this tank track part, at the rate of *one part every ten seconds.* The machine used was an American SBD 48-15 Dual Ram Broaching Machine equipped with two American-engineered fixtures, featuring automatic hydraulic clamping, and mounted on two standard receding tables which operate alternately. The left hand table holds two parts for straddle broaching the sides. The right hand table holds two parts for broaching the two radii on each part. A continuous automatic cycle permits the operator to simply load and unload the parts at one fixture while the other fixture broaches.

FULL ROUND BROACHES ADD TO ECONOMY

Full round broaches are used to broach the half rounds. They are simply rotated 180° when dull thus increasing the number of parts produced between resharpenings.

This is a typical example of the complete service you get from American Broach . . . the organization that gives you the extra advantage of experience gained in producing all three . . . broaches, machines and fixtures. For the answer to your problems just send a part-print and hourly requirements. No obligation. Address Dept. I.

For more information on the American SBD 48-15 write for Circular #300.

AMERICAN *American* BROACH & MACHINE CO.
A DIVISION OF SUNDSTRAND MACHINE TOOL CO.
ANN ARBOR, MICHIGAN

SUNDSTRAND

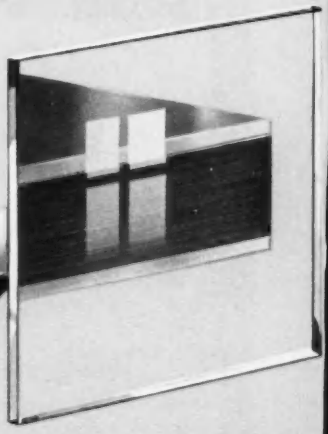
See *American* First — for the Best in Broaching Tools, Broaching Machines, Special Machinery

Put

SuVeneer®

CLAD METAL

to work for you



on these and other strategic applications

AUTOMOTIVE RADIATORS

INTERNAL COMBUSTION ENGINE HEAD GASKETS

FLEXIBLE TUBING

WIRE AND SWITCHBOARD TERMINALS

BEAM CHARGE

BULLET JACKETS

SCREW SHELLS

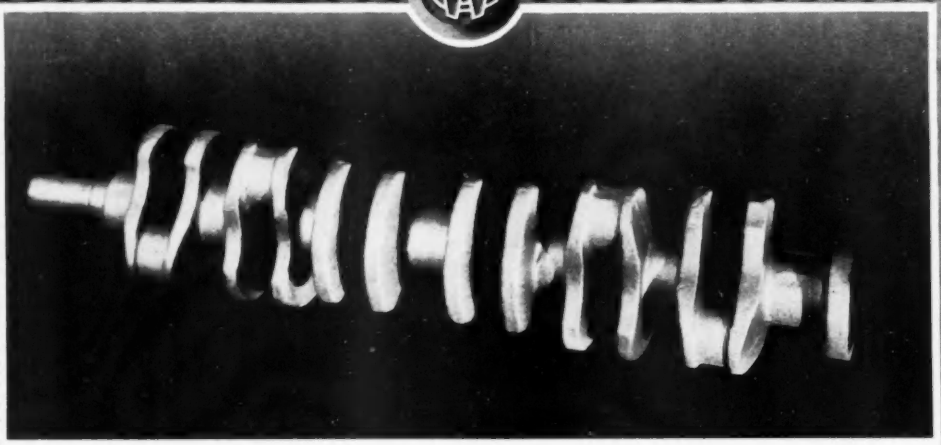
ELECTRIC WATER HEATER ELEMENT GASKETS (ETC.)

These uses of copper-and-steel SuVeneer Clad Metal typify the many ways in which critical copper is being conserved by alert manufacturers—*while maintaining full product performance.* ● SuVeneer Clad Metal lends itself admirably to fabrication by usual methods, is dimensionally accurate and uniform in behavior, and is furnished in easy-handling coils. *Write for complete details.*

Superior Steel

CORPORATION

CARNEGIE, PENNSYLVANIA



The Crankshaft

—backbone of the internal combustion engine.

Modern Trends—more r.p.m.'s, higher compression ratios, more power per cubic inch of displacement—all lend additional emphasis to the importance of crankshaft quality.

Wyman-Gordon Experience—the most extensive in the industry, assures the maximum in physical properties, uniform machinability, and balance control.

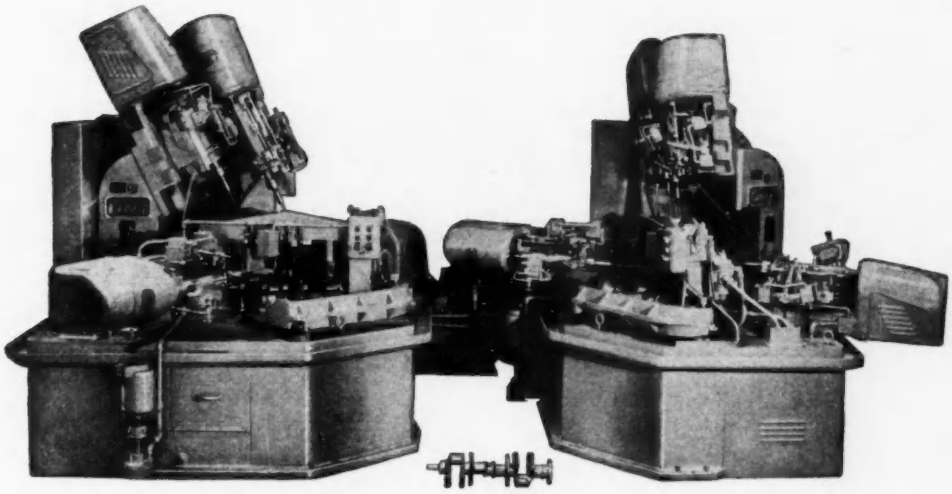
Standard of the Industry for More Than Sixty Years

WYMAN-GORDON

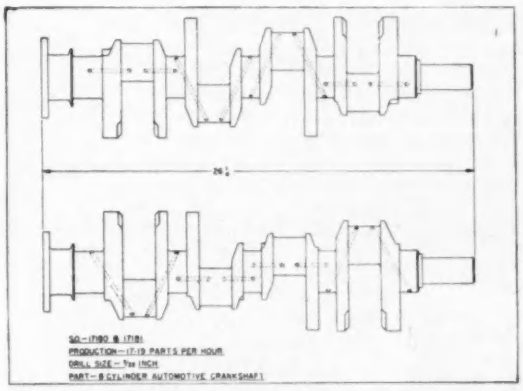
FORGINGS OF ALUMINUM • MAGNESIUM • STEEL

WORCESTER, MASSACHUSETTS

HARVEY, ILLINOIS DETROIT, MICHIGAN



Avey CRANKSHAFT DEEP HOLE DRILLING MACHINE



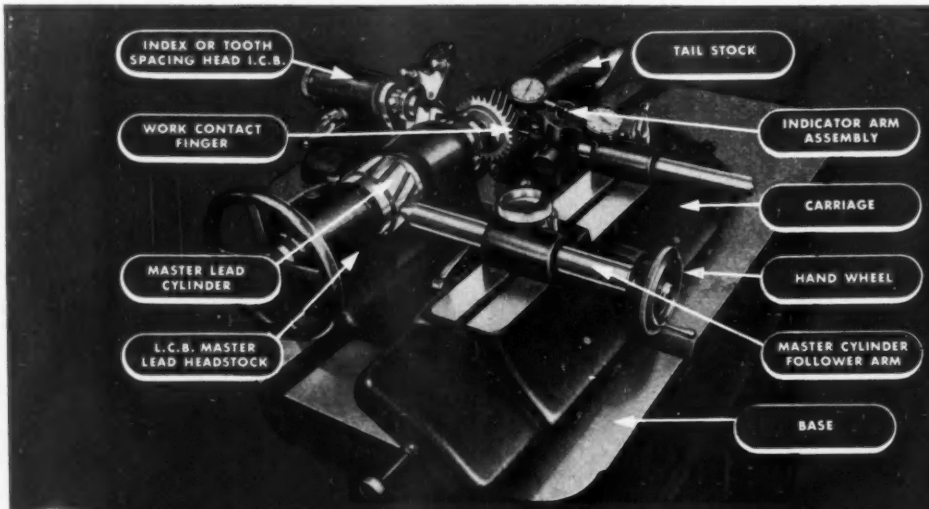
Fixtures—The fixtures were hydraulic automatic clamping and were supplied with swinging cradle for loading.
Material—Drop Forged Steel.
Production—17 to 19 completed crankshafts per hour.

MACHINE S. O. No. 17180 and No. 17181

Consisted of four No. 1 *Avey-draulic* (hydraulic) Deep Hole Drilling Units mounted and aligned at suitable angles for drilling oil holes in crankshafts. Units were equipped with torque-matic control and had 12″ ram travel. A fine feed attachment was provided for starting the drill as the holes were off center. This fine feed stroke was adjustable up to ½″ in depth, after which the normal feed rate is resumed. The coolant system was built in the fabricated base; however, the hydraulic power source was a separate unit. A pair of machines are required to drill all the oil holes in an eight-cylinder crankshaft. The machines conformed to Automotive Standards.

Replace your obsolete Drilling and Tapping Equipment with **Avey** Special Machines.
Write ***today!***

Avey DRILLING MACHINE CO.
CINCINNATI 1, OHIO



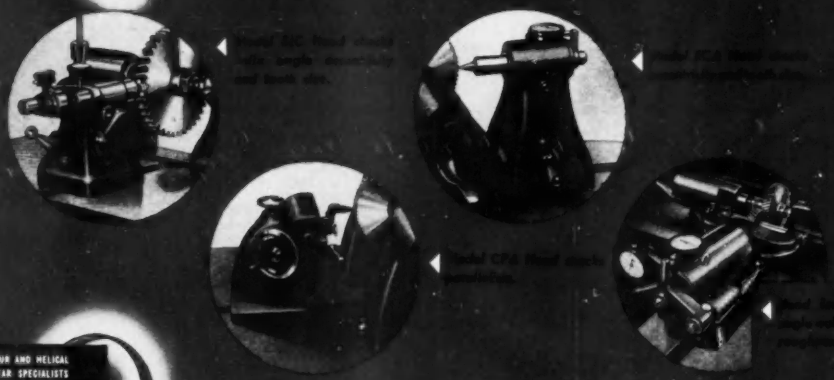
LOCATE AND EVALUATE GEAR ERRORS

QUICKLY and ACCURATELY

Errors in each of the several gear characteristics can be quickly analyzed and evaluated on the Red Ring Universal Gear Checker.

This instrument with 5 interchangeable heads indicates errors in tooth size, spacing, helix angle, lead, eccentricity, parallelism and wobble. This Checker is rugged enough for the production shop—sensitive enough for the gear laboratory—simple enough for the average shop man to use effectively. No special skill is required—ideal for the rapid inspection of mass-produced gears.

For more detailed information and specifications ask for Bulletin C-51-6.



SPUR AND HELICAL GEAR SPECIALISTS
ORIGINATORS OF ROTARY SHAVING AND ELLIPTOID TOOTH FORM

NATIONAL BROACH & MACHINE CO.

5600 ST. JEAN . . . . . DETROIT 13, MICHIGAN

WORLD'S LARGEST PRODUCER OF GEAR SHAVING EQUIPMENT

Deep-Drawn in 2 DRAWS with ADVANCE TOOLING

Depth Bomb part drawn with Advance Dies from 31½" steel blank.

THIS DIFFICULT STAMPING SIMPLIFIED BY NEW ADVANCE TOOLING METHOD

Here's another example of ADVANCE tooling ingenuity. The problem: This depth bomb tail piece deep-drawn to the dimensions shown above . . . in just two draws . . . from a 14-gauge steel blank. Similar pieces were formerly produced with five or six draws, or by butt-welding two halves.

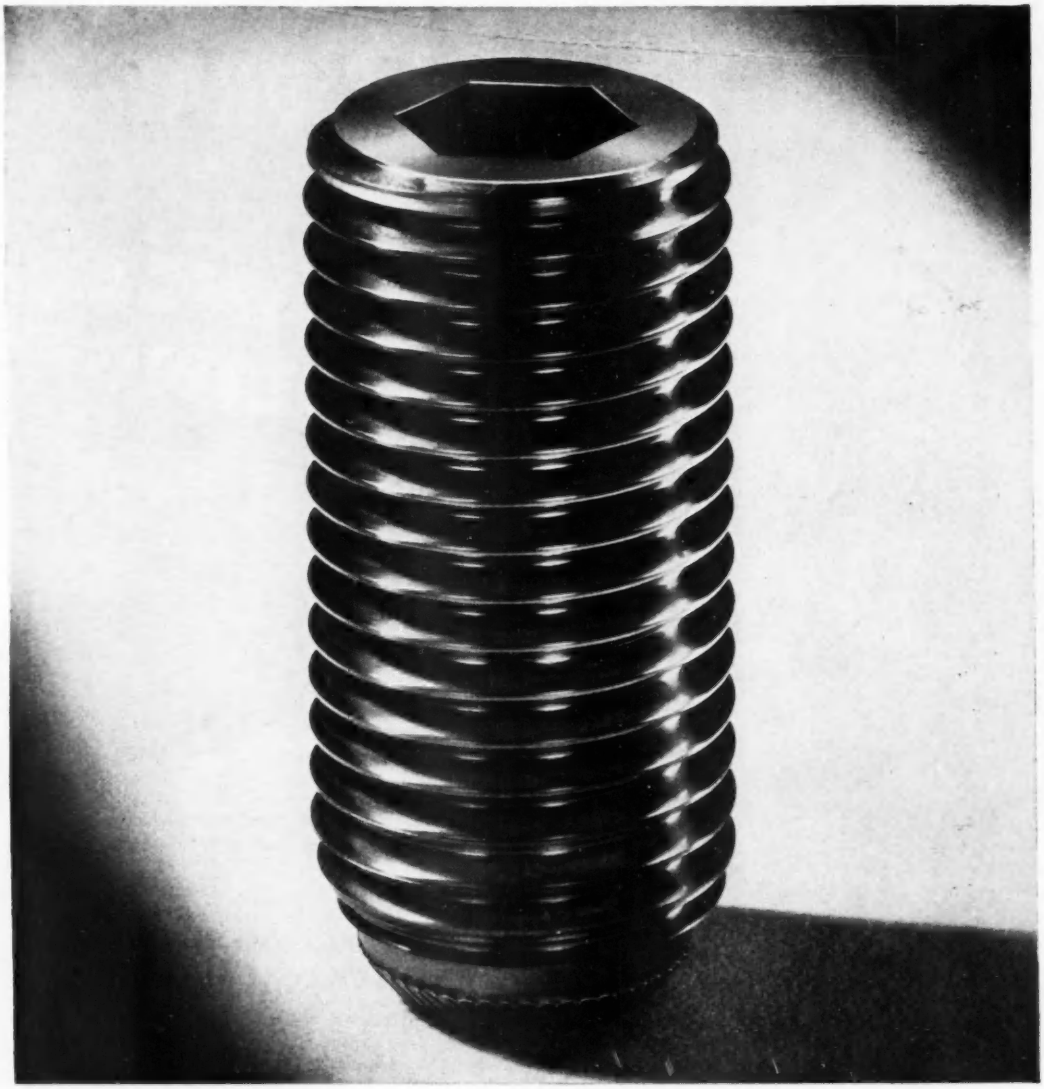
Advance tooling techniques met the requirements — with dies that produced the part in two draws as specified. Advance can help you with your difficult drawing and stamping problems . . . and save you time and money in your processing operations. Our engineers and our completely equipped die plant are ready to serve you. Consult us — or write for complete information.

Write for Illustrated Descriptive Bulletin

ADVANCE DIE & TOOL CO.

6800 MADISON AVENUE — CLEVELAND 2, OHIO

PHONE: WOodbine 1-9191



For positive, vibration-resistant SELF-LOCKING UNBRAKO SOCKET SET SCREWS

UNBRAKO Self-Locking Socket Set Screws won't work loose. Non-slip internal wrenching provides positive drive. Self-locking feature prevents creep and subsequent loosening. Machinery stoppage and production losses are materially reduced. Write for descriptive literature. STANDARD PRESSED STEEL Co., Jenkintown 53, Pennsylvania.

Standard UNBRAKO *Self-Locking Set Screws, #4 to 1" inclusive, are available from your* UNBRAKO *distributor's stocks. Ask him for your supply of these and other* UNBRAKO *threaded industrial fasteners.*

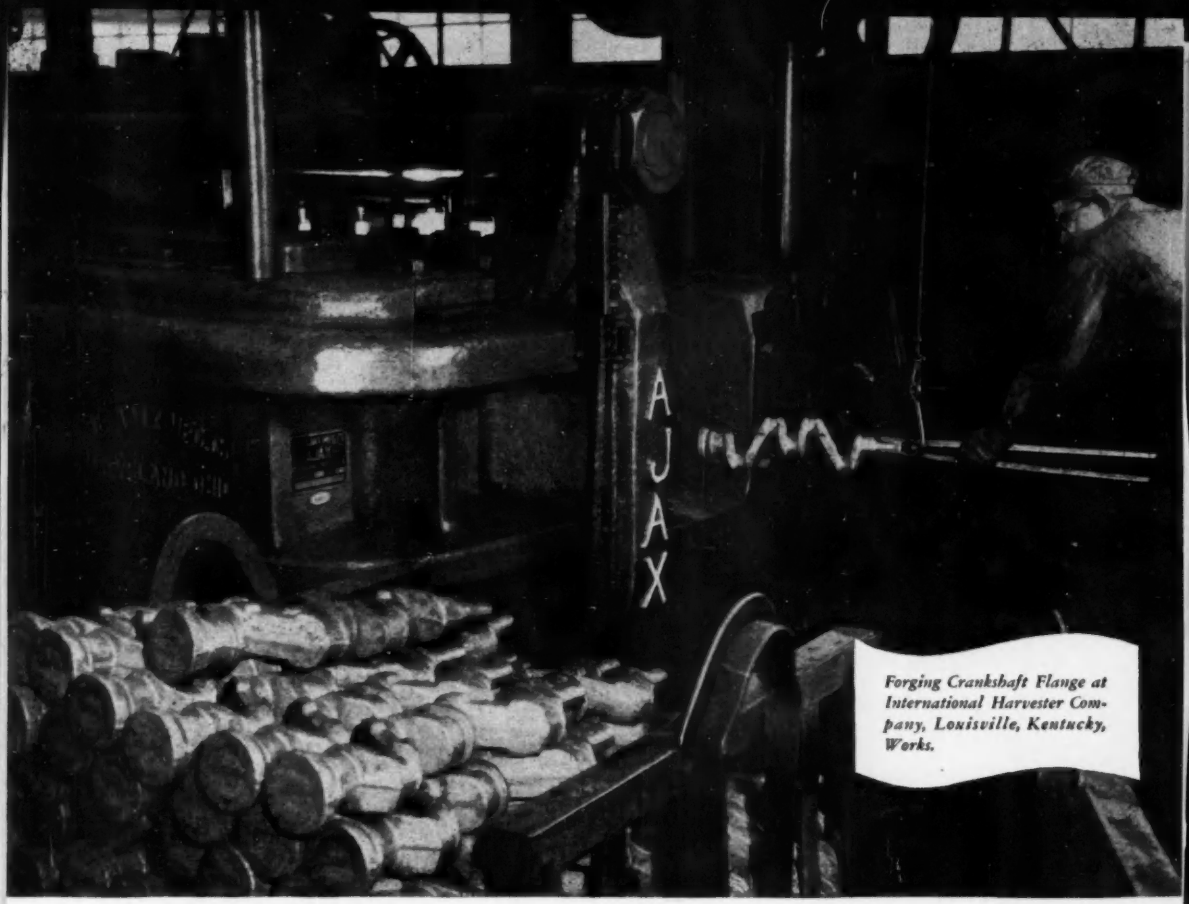
SPS

See us at the A.S.T.E. 20th Annual Convention, International Amphitheater, Chicago, Ill., March 17 to 21, 1952

JENKINTOWN, PENNSYLVANIA

UNBRAKO® SOCKET SCREW DIVISION

CAP SCREWS • SET SCREWS • SHOULDER SCREWS • DOWEL PINS • PRESSURE PLUGS



Forging Crankshaft Flange at International Harvester Company, Louisville, Kentucky, Works.

★ Another job for the AJAX Upsetter

In forge shops all over the world, AJAX Upsetting Forging Machines are being chosen as the best piece of hot metal working machinery for a wide variety of jobs in diversified fields of forging. Some forge shop operators favor AJAX Upsetters because of the steady production flow from these air clutch operated machines. Other shop operators may choose the AJAX because the greater rigidity and more accurate alignment provide better filling of the die impressions with a minimum of flash. While still others may be thinking of the saving of the wear and tear on manpower due to the ease of operation.

With all of these important advantages and economies, it is very natural that Ajax Forging Machines continuously maintain a high percentage of productive time.

WRITE FOR BULLETIN 65-C

THE Ajax MANUFACTURING COMPANY

EUCLID BRANCH P. O. CLEVELAND 17, OHIO

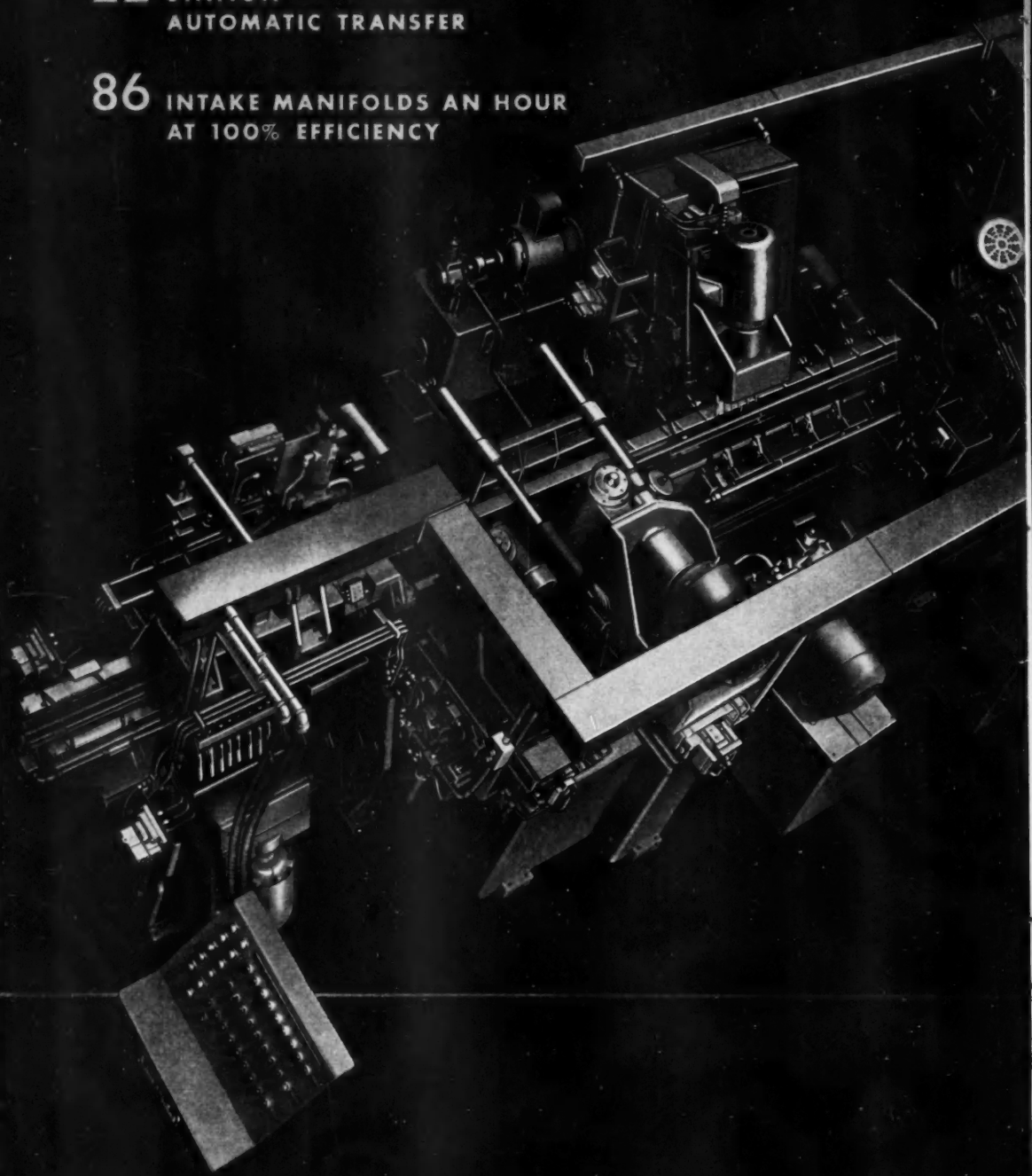
110 S. DEARBORN ST. CHICAGO 3, ILLINOIS

DEWART BUILDING NEW LONDON, CONN.

SNYDER MACHINES CONTROL COSTS

22 STATION
AUTOMATIC TRANSFER

86 INTAKE MANIFOLDS AN HOUR
AT 100% EFFICIENCY



AUTOMATIC OPERATION

MILLS • DRILLS • TAPS • REAMS

SPOTFACES CARBURETOR AND WATER OUTLET PADS

AUTOMATIC HYDRAULIC POSITIONING

AUTOMATIC CLAMPING • AUTOMATIC TRANSFER

AUTOMATIC CONTROLS WITH SWITCH-OVER TO MANUAL

AUTOMATIC LUBRICATION

AUTOMATIC SAFETY INTERLOCKING SYSTEM

SKILLED OPERATORS NOT NEEDED

SNYDER

TOOL & ENGINEERING COMPANY

3400 E. LAFAYETTE

DETROIT 7, MICHIGAN

26 Years of Successful Cooperation with Leading American Industries

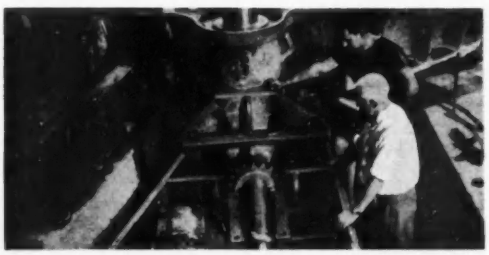
Cutting a large gear • Metal: bronze, 180 Brinnell • Machine: Gould & Eberhardt gear hobbing machine • Part: main drive worm gear wheel for large shear • 42⅝" O.D.; 5" thick; 87 teeth • Tool: high-speed steel hob • Feed: 0.006 • Speed: 42 rpm • Cutting Oil: Sunicut 105

THESE "JOB PROVED" SUN PRODUCTS STEP UP PRODUCTION, HELP CUT COSTS

When a Sun representative recommends a lubricant or cutting oil, he does so with confidence. Every product developed in Sun's laboratories is exhaustively tested by actual use in industry until desired performance characteristics have been clearly established. Only then is it rated "Job Proved" and offered for sale.

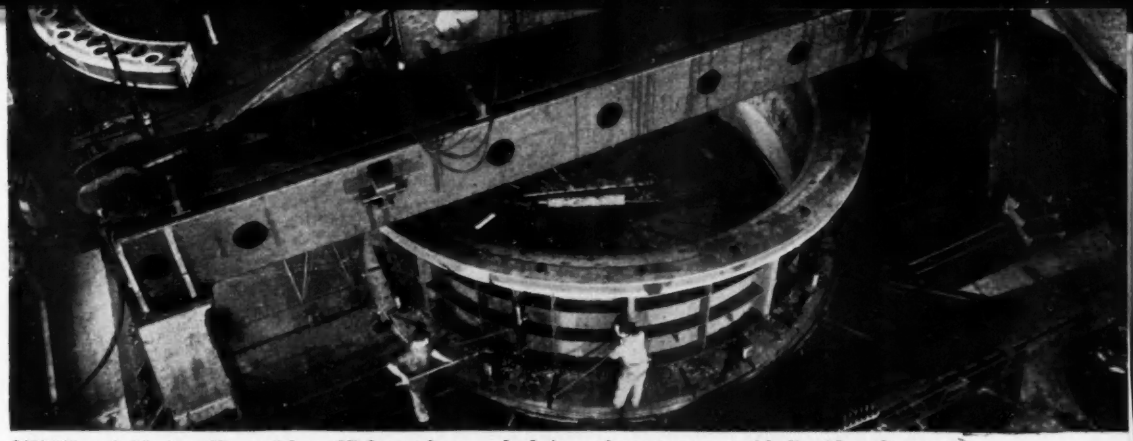
In tackling your problems, a Sun representative draws on the wealth of experience he has acquired working in all fields of industry. If the technical nature of your problem calls for it, one of a special group of Sun mechanical and chemical engineers will go to work in your behalf. Back of them, remember, are the vast research, development and refining facilities of Sun Oil Company. All this is your assurance that Sun products step up production, help cut costs.

For complete information on Sun cutting oils and lubricants, or the services of a Sun representative, call or write the nearest Sun Office.



This synchronous gear drive is part of one of the world's largest vertical boring mills. It controls table speeds from .094 to 6.045 rpm and is pressure-fed with Sunep—an extreme pressure lubricant that is exceptionally stable. Its high film strength minimizes wear and protects heavily loaded teeth in many types of gear boxes.

This reel contains free-cutting brass, aluminum, cold-rolled and stainless steel, phosphor, and hardware bronze. All except the stainless steel were machined on B&S Automatics using Sunicut 11, which does not corrode the bronze gibs, minimizes carry-off. Another Sunicut grade is used on the stainless steel.



$400,000 vertical boring mill, one of the world's largest, bores, turns and faces hydraulic turbine parts. Sunoco Way Lubricant, approved by 38 machine tool builders, was selected by the design engineers to prevent stick-slip with resultant scoring of ways and slides. Even under the weight of work as heavy as 75 tons, Sunoco Way Lubricant has never squeezed out.

METALWORKING LUBRICANTS

SUNVIS 900 OILS—Unexcelled for hydraulic systems, spindles, and gear boxes of machine tools where longest possible oil life, plus maximum protection, is required. Sunvis 900 Oils have a high viscosity index and uniform 0 F pour point, are fortified to prevent corrosion and oxidation.

SUNVIS OILS—For general lubrication of machine tools at normal temperatures. Ideal for application through oil cups, fittings and holes. Have high uniform viscosity index, low pour point, and low carbon content.

SUNVIS H.D. 700 OILS—Unsurpassed for hydraulic systems and gear boxes where continuous contamination and rusting are problems. Recommended as hydraulic system cleaners. Supply detergency, and minimize oxidation and corrosion.

CIRCO OILS—Straight mineral oils designed for once-through application by bottle-oilers, wick-feed oilers, oil holes, etc., on machine tools.

SUNTAC OILS—Recommended for bearings, gears, sprockets, chains, cables, couplings and linkages to eliminate "throw-off." Compounded to provide adhesiveness, Suntac Oils cling to bearing surfaces and supply constant, superior lubrication.

SUNOCO WAY LUBRICANT—Eliminates "stick-slip" of tables, scoring of machine tool ways, poor finishes. Non-corrosive, with outstanding metal-wetting and adhesive properties, ample viscosity, and E.P. qualities.

SUN GUN GREASES—Smooth greases with excellent pumpability. Designed for pressure fittings on equipment operating at normal speeds and temperatures.

SUN ADHESIVE PRESSURE GREASES—For chains, slides, cams, sprockets, open gears, cables, couplings, linkages, etc., where "throw-off" must be avoided. Applied without preheating.

SUN ROLLER BEARING GREASES—For use in electric motors and ball or roller bearings on machine tools.

SUNEP OIL—Lead-naphthenate type of extreme-pressure lubricant for heavy-duty gears, bearings and other heavy-duty applications. Excellent stability, as well as rust-preventive and noncorrosive characteristics, helps prolong life of gear sets.

CUTTING OILS

SUNOCO EMULSIFYING CUTTING OIL—Mixes with water to produce a stable white emulsion. Efficient and economical cooling and lubricating medium for turning, milling, drilling and other metalworking operations on ferrous and nonferrous metals. Also an excellent grinding coolant.

SUN HEAVY-DUTY EMULSIFYING CUTTING OIL "F"—Developed for applications where neither regular emulsifying oils nor straight cutting oils are completely satisfactory. Can frequently replace straight oils, especially on high-speed jobs, where it eliminates smoking.

SUNICUT 11—A low-viscosity, transparent, straight cutting oil that will not stain brass or copper under normal conditions. An excellent dual-purpose oil, it is intended mainly for Brown & Sharpe automatics machining all nonferrous metals, as well as free-machining steels such as B1112 and B1113.

SUNICUT 102—A transparent, active-sulfur-type, straight cutting oil recommended for automatic screw machines on all types of steel. An ideal general-purpose cutting oil in shops using a wide variety of machines.

SUNICUT 105—Heavy-duty, transparent, sulfurized, straight cutting oil for operations like gear-cutting and broaching. Also for turret lathes and hand screw machines doing turning, threading and tapping on alloy steels.

SUNICUT 209—A medium-viscosity, transparent, straight cutting oil for machining all grades of steel, also brass and copper. Especially good as a dual-purpose oil on larger automatics. Recommended for more difficult screw machine jobs—such as alloy steels and tough bronzes demanding high finishes and close tolerances.

SUNICUT 216—A special oil developed for thread-grinding operations. Heavily compounded to produce mirror-like finishes and eliminate burning and checking.

SUNICUT 812W—Low-viscosity, transparent, straight oil, containing additives which prolong tool life, produce a better finish. For use as a dual-purpose oil for automatic screw machines and as a general-purpose, medium-duty cutting oil for nearly all machine tools.

SUNICUT 817W—Similar to Sunicut 812W except that it has a higher viscosity. Retains its excellent cutting and lubricating qualities even under the severe conditions for which it is intended . . . heavier cuts and higher temperatures.

SUNICUT 973—Low-viscosity, transparent, straight cutting oil gives superior finishes and excellent tool life when machining aluminum or magnesium and their alloys. Won't stain steel, aluminum, magnesium or copper. Its cooling and lubricating qualities make high-speed production possible.

In this pipe fitting plant, S.E.C.O. replaced a straight cutting oil and eliminated the need for costly alkali cleaners and rust preventives. Beside doing an efficient cutting job, it keeps fittings from rusting or discoloring, and has eliminated slippery floors.

ADDITIONAL METALWORKING PRODUCTS

SUN QUENCHING OILS—Oils specially refined to aid maximum development of desired physical properties in a wide variety of steels.

SUN TEMPERING OILS—Particularly suited to tempering steel. Because of their low carbon content and long stability under heat, these oils have an unusually long service life.

SUN ROLLING OILS—Both straight and emulsifying oils which permit maximum production in rolling steel, aluminum, brass and copper.

SUN SPIRITS—For metal cleaning. Among fastest cleaners of its type. Colorless and free of sulfur compounds. Needs no heating or mixing. Considered safe when used properly for factory processes by the National Board of Fire Underwriters. Flash point over 100 F.

SUN INDUSTRIAL PRODUCTS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL

SUNOCO

This door is always open

The purchase of a new tool is not in itself assurance of greater profit. Equally important is its proper application to the job.

Our plant has become the forging laboratory, our engineering department the forging encyclopedia and our organization the forging consultants for industry.

Our leadership as pioneers of forging methods and applications establishes our ability to help you best.

When you come to NATIONAL, this service is yours.

NATIONAL
MACHINERY COMPANY
TIFFIN, OHIO—SINCE 1874

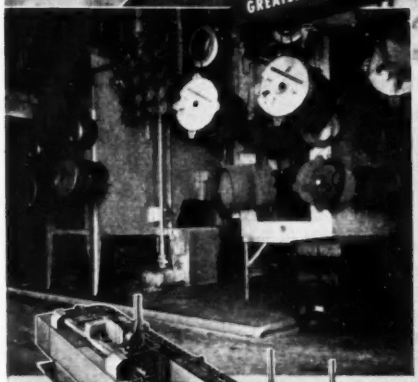
DESIGNERS AND BUILDERS OF MODERN FORGING MACHINES • MAXIPRESSES • REDUCEROLLS • COLD HEADERS • BOLTMAKERS • NUT FORMERS • TAPPERS • NAILMAKERS

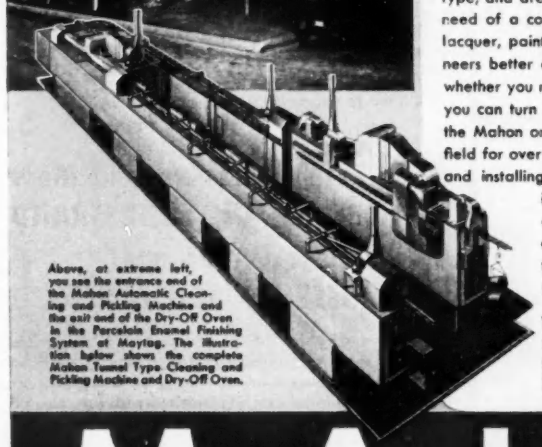
Hartford **Detroit** **Chicago**

COMPLETE SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH

Two Mahon Hydro-Filter Spray Booths in the air conditioned spray room of the Synthetic Enamel Finishing System at Maytag. Note Diffusers of the Filtered Air Supply System in the ceiling.





Above, at extreme left, you see the entrance end of the Mahon Automatic Cleaning and Pickling Machine and the exit end of the Dry-Off Oven in the Porcelain Enamel Finishing System at Maytag. The illustration below shows the complete Mahon Tunnel Type Cleaning and Pickling Machine and Dry-Off Oven.

Modern FINISHING EQUIPMENT at MAYTAG produces FINER FINISH!

The famous Maytag Appliances receive their fine lustrous finishes in Mahon Finishing Systems. In the modern Maytag plant at Newton, Iowa, there are two complete Mahon Finishing Systems—one for synthetic enamel, and one for porcelain enamel finishing. Both systems are of the Mahon "Self-Housed" type, and are models of efficiency in modern production finishing. If you are in need of a complete finishing system for either synthetic or porcelain enamel, lacquer, paint or varnish, you, like other manufacturers, will find Mahon engineers better qualified to advise you and to do your planning. Regardless of whether you require a complete new system or an individual unit of equipment, you can turn your problem over to Mahon with complete confidence, because the Mahon organization has pioneered development in this highly specialized field for over thirty years . . . the experience of planning, engineering, building and installing thousands of finishing systems, for every conceivable product in virtually every industry where finishing constitutes a major production operation, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon's Insert in Sweet's Mechanical Industries File for information, or write for Catalog No. A-652.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Dry-Off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens, Hydro-Foam Dust Collectors, Dust Traps, Fog-Filters, and other Units of Special Equipment.

MAHON

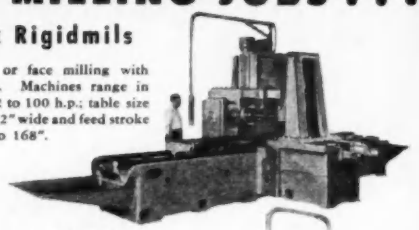
Cut Metal Working Costs

With These SUNDSTRAND Machines and "Engineered Production" Service

FOR MILLING JOBS . . .

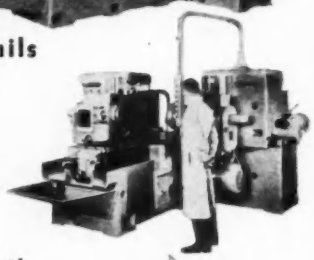
Simplex Rigidmils

Perform slab or face milling with single spindle. Machines range in size from 1-1/2 to 100 h.p.; table size from 8" up to 42" wide and feed stroke from 12" up to 168".



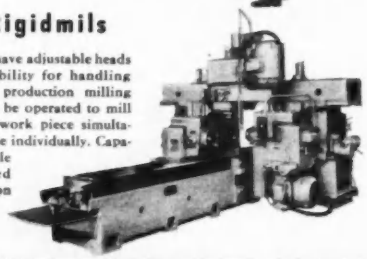
Duplex Rigidmils

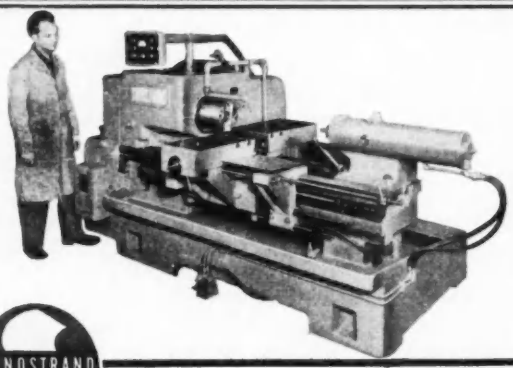
Have two opposed heads which are mounted on adjustable columns to facilitate wider range of work. Machines can be furnished with power adjusted or fixed columns.



Triplex Rigidmils

These machines have adjustable heads which add flexibility for handling wider range of production milling jobs. Heads can be operated to mill three sides of a work piece simultaneously or operate individually. Capacity of heads, table widths and feed strokes available on request.





Basically, there are two approaches to solving production milling problems, (1) obtaining standard machines, then trying to process parts over these machines so as to meet production requirements, (2) designing the most productive processing method, then obtaining machines to suit this method — standard or semi-standard machines, if possible, or entirely special machines, if necessary.

This latter method is Sundstrand "Engineered Production" . . . the most practical approach to economical metal working production.

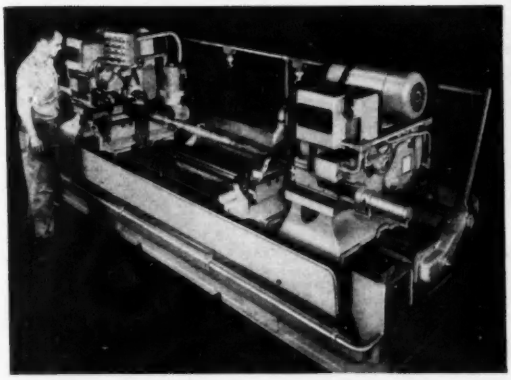
Here are some representative examples of these machine tools and services offered by the Machine Tool Division of Sundstrand. Standard basic machine designs and units, coupled with methods engineering assistance, have resulted in many cost-saving Sundstrand installations. If you have metalworking operations in your plant and are interested in lowering manufacturing costs, call in a Sundstrand representative. He'll be glad to assist you in obtaining more economical methods. There is no obligation for this service.

For Both Short-Run and Mass Production, Use SUNDSTRAND Automatic Lathes and ENGINEERING ASSISTANCE

Sundstrand Models 4A, 8A, 12A and 16 single spindle Automatic Lathes handle a wide variety of short or long run turning, boring, facing, or forming operations. Machines can be furnished with one, two or three tool slides. Sundstrand Automatic Lathes are available in varying speed combinations and lengths with work capacities ranging from 3 to 75 h.p.

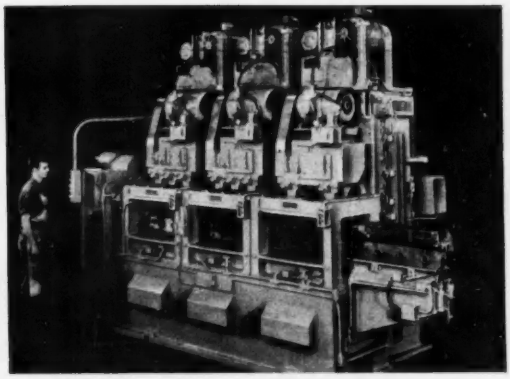
SUNDSTRAND

RIGIDMILS • AUTOMATIC LATHES • HYDRAULIC EQUIPMENT



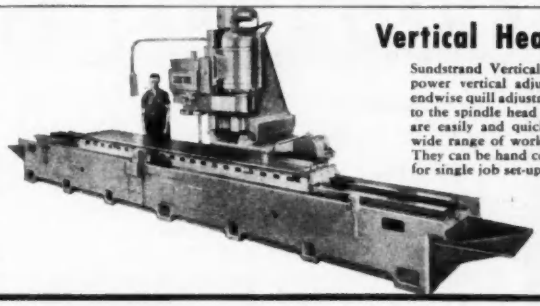
Mill and Center In One Operation

Save time and get more accurate work with a Sundstrand Milling and Centering Machine, because it mills to length and centers in the same set-up. The work is handled once instead of twice. Extreme accuracy is obtained by performing both operations with a single clamping of the part, thereby maintaining a definite relation between the ends and centers. Shown is a Sundstrand Milling and Centering machine for handling a range of work from 1" to 3-1/2" diameter and 8" to 48" long. Other sizes are available.



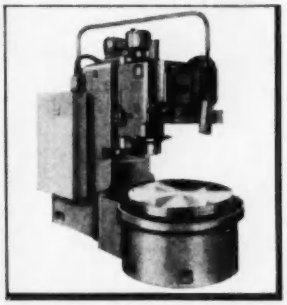
Special Machines for Milling, Turning, Boring and Centering

When standard machines cannot be tooled to suit your needs or if your production requires the purchase of too many duplicate standard machines, ask Sundstrand engineers to work out a practical solution in the form of a special machine tool. For instance, the machine above is a special "Rise-and-Fall" machine which automatically mills the bearing faces of a motor block.



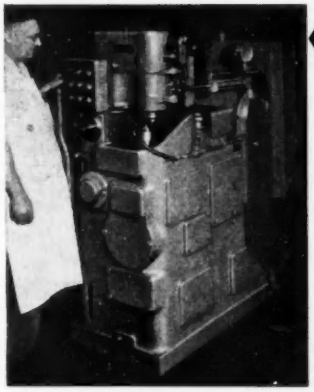
Vertical Head Rigidmils

Sundstrand Vertical Spindle Rigidmils have power vertical adjustment to spindle head, endwise quill adjustment and cross adjustment to the spindle head carrier. These machines are easily and quickly adjusted to handle a wide range of work and to simplify set-ups. They can be hand controlled by push buttons for single job set-ups — or automatically controlled by dogs on the front of the machine table for a wide variety of table cycles in production milling work.



Vertical Rotary Rigidmils

Sundstrand Rotary Rigidmils are available in three standard sizes with 36" and 48" diameter tables. They have way type cross adjustment of the spindle head carrier and way type vertical adjustment to the spindle head so as to provide maximum support to the cutter for either large or small parts. The adjustable swinging pendant permits easy access to the machine controls from any operating position. Power adjustment is optional for both the spindle head and the spindle head carrier.



Contour Milling Machines

Sundstrand contour milling machines are adaptable to many cam milling operations on sewing machines, guns, business machines, governors and other small parts. A single vertical spindle cam-controlled, hydraulically operated milling machine, it is provided with one vertical cutter spindle and one cam follower spindle, mounted together on a pivoting arm. Ratio between cam roller arm and cutter arm is 2 to 1 which reduces any cam error 1/2 on the finished part. Also, master cam, in most cases, can be made considerably larger than the work piece so as to eliminate excessive cam rises.

FREE Additional Data

on any or all of these machines is available. For complete set of literature ask for Bulletin 217.

SUNDSTRAND

SUNDSTRAND
Machine Tool Company
2571 Eleventh St. Rockford, Ill., U.S.A.

DRILLING AND CENTERING MACHINES • SPECIAL MILLING AND TURNING MACHINES

IF THE STOCK IS FLAT
MICRO-POLISH

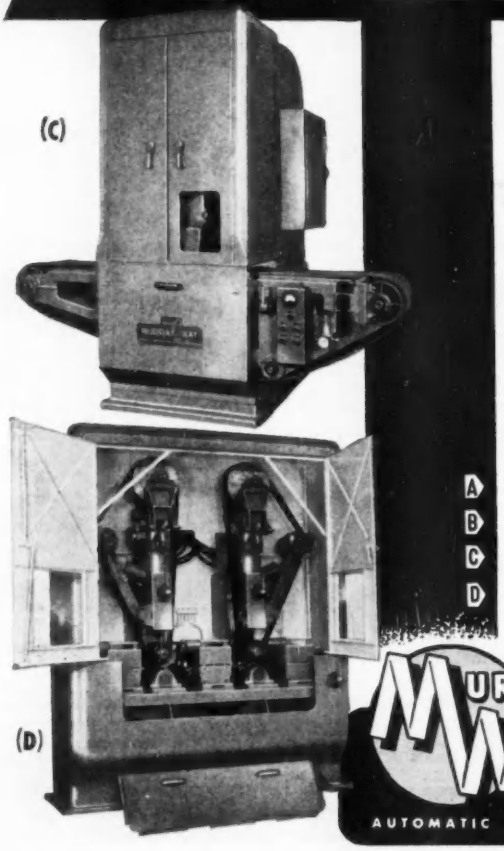
can automatically finish your job faster, better or cheaper regardless of size, shape or material.

Murray-Way, "engineered-to-the-job", Micro-Polish equipment is now being used the country over in every type of application, on every conceivable kind of material.

Micro-Polish is an amazingly versatile and consistently successful automatic polishing method useful on any job from the prepolishing of low grade steel sheet, to meet high quality job specifications, to the production sharpening and polishing of pruning tools.

Micro-Polish can precision finish any size, shape or length of sheet, strip or blanked stock in ferrous or non-ferrous metals, wood, fiber, plastic, rubber or leather, by wet or dry process.

The typical Micro-Polish equipment shown here demonstrates how Murray-Way engineers have adapted the process to individual job requirements.



A — A Micro-Polish giant used in reclamation grinding of steel strip.

B — One of our smaller units used in polishing narrow bi-metal stock.

C — A versatile unit using belt conveyor to polish a variety of flat stampings and forgings.

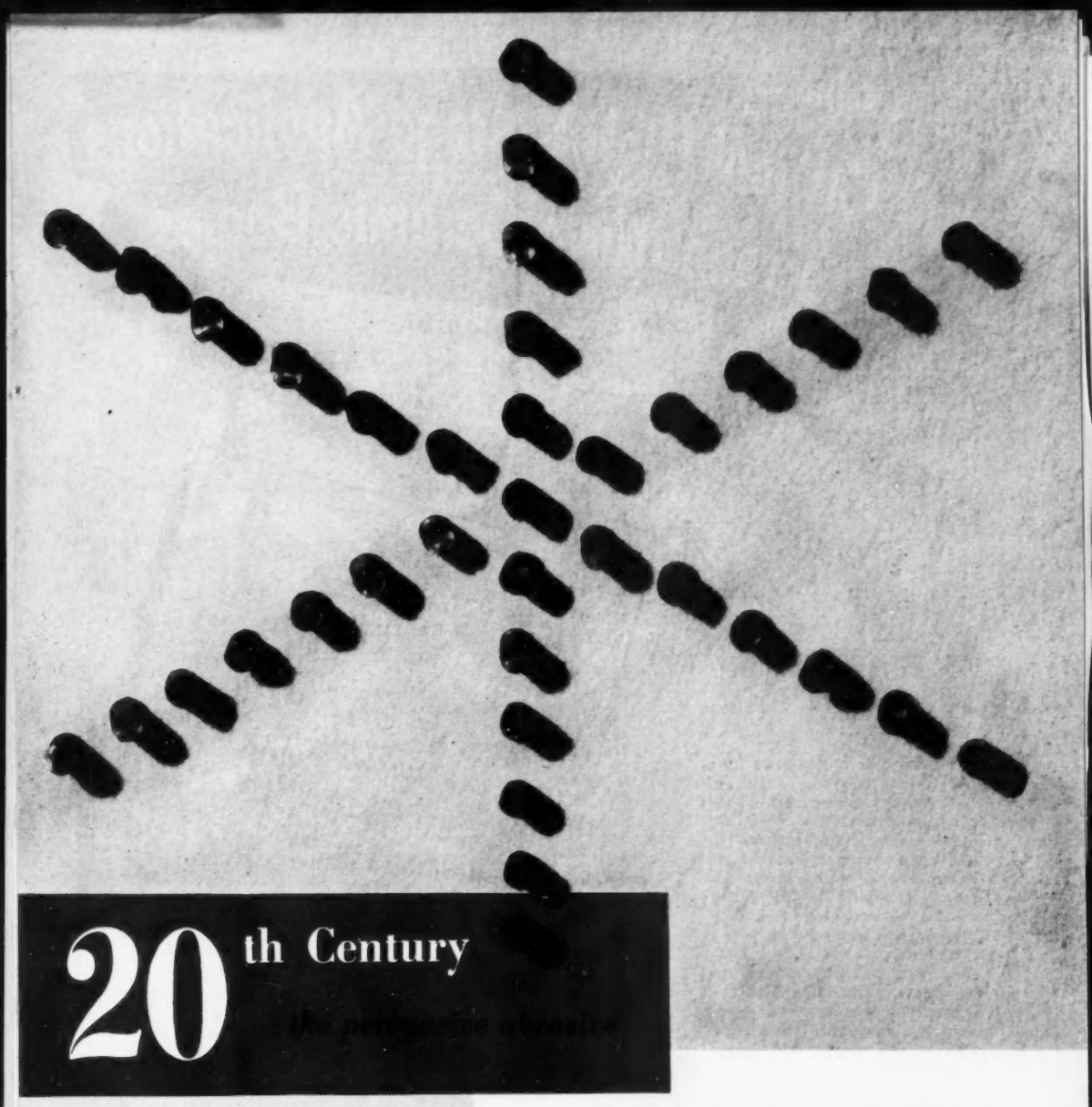
D — A space saver unit for polishing flat bar stock. Two heads and two grades of belt grain accomplish the complete job without rehandling.

Murray-Way engineers will gladly show you how this time and cost saving method can improve your polishing operation.

MURRAY WAY THE MURRAY-WAY CORPORATION

POST OFFICE BOX 180 — BIRMINGHAM, MICHIGAN

AUTOMATIC POLISHING, BUFFING, GRINDING EQUIPMENT



20th Century

the perfect cut abrasive

Any reference to 20th Century Drawn Steel Shot will emphasize its highest quality, economy and ability to stand hard use.

THE CLEVELAND Metal Abrasive CO.

807 East 67th Street Cleveland 8, Ohio
Howell Works: Howell, Michigan

One Of The World's Largest Producers Of Quality Abrasives
Normalized (Copyrighted Trade Name)–Hard Iron–Cut Wire–Powder

For Critical High Voltage Applications . . . Frenchtown Ceramic Bodies

2570 ZIRCON MULLITE

An economical, all-around, white spark plug insulator body with exceptional dielectric strength, low thermal expansion and correspondingly high shock resistance.

3569 ZIRCON

A white ceramic similar to 2570 with high dielectric strength and better electrical resistance at high temperatures. Extremely high impact resistance after thermal shock.

7873 ALUMINA MULLITE

An excellent white porcelain that gives the engineer leeway to design intricate shapes that must provide good mechanical strength, thermal shock resistance and thermal conductivity.

6096 ALUMINA

A white body, similar in structure to 7973, adaptable for use in high compression engines. It has very high mechanical strength and thermal conductivity. Its thermal shock resistance is correspondingly good.

4462 HIGH ALUMINA

A brown ware with exceptionally high impact, compressive, and flexural strength. Used largely in aircraft, particularly for spark plug insulators. Has excellent electrical properties at high temperatures, and superior abrasion resistance.

Frenchtown ceramics have long been recognized for their excellent performance as spark plug insulators. But there are many other applications in which the unique combination of electrical and mechanical properties, available in porcelain, can be used to advantage. For help on any problem involving electrical insulation at high temperatures, feel free to call on Frenchtown ceramic engineers — or write for a copy of our electrical and mechanical properties chart listing these and other ceramic bodies.

FRENCHTOWN PORCELAIN CO.

SALES OFFICE:

81 MUIRHEAD AVENUE • TRENTON, N.J.

Factory: Frenchtown, N. J.

50 years in BROACHING!

. . . we're the oldest in the world!

1902 **LAPOINTE** *1952*

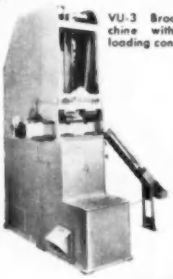
GOLDEN ANNIVERSARY

PLEASE TURN.....

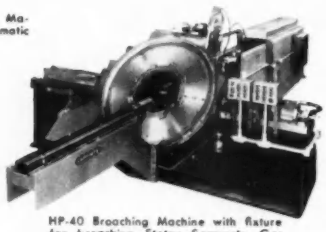
GOLDEN ANNIVERSARY

LAPOINTE

. . . the world's OLDEST and LARGEST manufacturers of BROACHING MACHINES and BROACHES

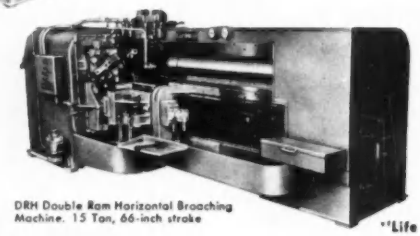


VU-3 Broaching Machine with automatic loading conveyor



HP-40 Broaching Machine with fixture for broaching Stator Segments, Gas Turbine Generator

DRV Double Ram Vertical Broaching Machine. 25 Ton, 66-inch stroke



DRH Double Ram Horizontal Broaching Machine. 15 Ton, 66-inch stroke

Write for the booklet, "Life was like that . . . before Broaching!" The old-time pictures of automobiles, agricultural machinery, aircraft, etc., indicate the progress made since 1902. Ask for Booklet H

Proud? . . . of course we're proud! Being the pioneer manufacturer, we feel that in those 50 years we have been responsible in no small measure for the development of the art of broaching — a process that is relatively new in the field of metal-working, but one that accomplishes truly remarkable savings of time, labor, and *cost* in all types and all sizes of shops.

With such a head start, it's hardly any wonder that we are also the world's *largest* manufacturers of broaching machines and broaches. Age alone couldn't bring us this size-distinction, but conscientious and capable service throughout the years *did!*

NO ONE ELSE HAS HAD 50 YEARS IN BROACHING . . . so no one else, of course, has *acquired 50 years of broach-engineering-background to place at your disposal.*

THE LAPOINTE MACHINE TOOL COMPANY

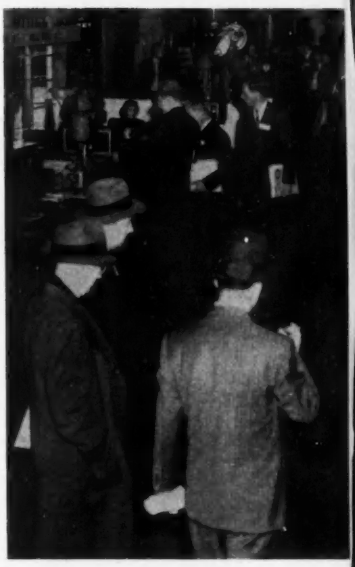
HUDSON, MASSACHUSETTS • U. S. A.

Branch Factory: Watford, Herts., England

THE WORLD'S OLDEST AND LARGEST MANUFACTURERS OF BROACHING MACHINES AND BROACHES

Huge ASTE Industrial Exposition

Opens in Chicago



WITH approximately 400 exhibitors displaying their production equipment and processes, "Tooling for Security" is the theme of the huge industrial exposition that opens March 17 in the Chicago International Amphitheatre under the sponsorship of the American Society of Tool Engineers. The exhibit floor space covers about 100,000 sq ft and with the attendance expected to reach around 25,000 industrial executives, production engineers, tool engineers and other manufacturing personnel, the event will be the largest ever held by the ASTE.

Simultaneously with the five-day exposition, the ASTE is holding its 20th annual meeting, which features more than 40 technical papers and separate panel discussions. The program for each day lists technical papers, discussion panels and forums on a vital production subject, which is tied in with the exposition. The days are designated as follows and are exemplified by the diversity of equipment types on display:

March 17 — Precision Control Day — Includes exhibits and technical papers relating to new gages, indicators, comparators, measuring blocks, instruments, inspection and testing equipment, setup tools, optical apparatus and surface plates.

March 18 — Metal Cutting Day — Covers new machine tools and attachments, cutting materials, tools, tool holders, lubricants and lubricating equipment.

March 19 — Materials Forming Day — New stamping, forging, plastics molding and other materials forming equipment featured in addition to dies, die sets and feeding and reeling devices.

March 20 — Grinding and Finishing Day —Covers interests in grinding, lapping, buffing, polishing and blasting equipment. Abrasive wheels, bands, strips, sticks, powders and pastes, plating supplies and marking equipment will also be shown.

March 21 — Machine Accessories, Drives and Controls Day — New chucks, collets, arbors, shafts, cams, gears, springs, fasteners and fixture components will be dealt with. Also new elements for mechanical, pneumatic, hydraulic, electrical and (*Turn to page* 456, *please*)

NEW Production Equipment and Other New Products at the 1952 ASTE Industrial Exposition in Chicago Are Described on the Following Pages . . . . . .

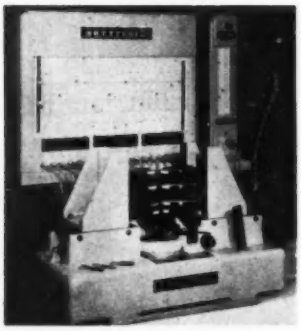
WHAT'S NEW AT THE

Chicago ASTE INDUSTRIAL EXPOSITION March 17 to 21

FOR ADDITIONAL INFORMATION regarding any of these items, please use coupon on PAGE 416

ASTE-1 Booth—710

Jet Blade Contour Checker



Shown for the first time by the Sheffield Corp., Dayton, Ohio, will be a multiple dimension Precisionaire instrument with an Airechart to check the contour, thickness, tilt and angle of jet turbine blades at 18 to 26 or more points simultaneously. The Sheffield jet engine blade contour gage features rapid and accurate measurement, ease of reading, flexibility and adaptability to a wide range of blades and means of adjusting or positioning the blade in gaging position. It can be adjusted for use with either the widest or narrowest tolerances specified in any plant at any phase of manufacturing jet blades. Reading the float position pattern in the Precisionaire columns (Airechart) provides a means of analyzing all conditions of the jet blade such as the contour, thickness, lean, tilt, warp and centrality.

ASTE-2 Booth—1727

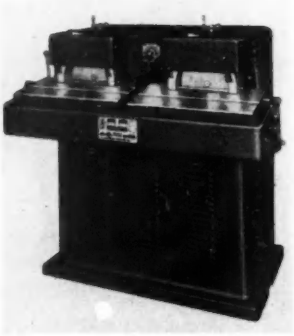
Tool Grinder

Standard, Types 10TD and 14TD, Twin-Wheel tool grinders, manufactured by The Standard Electrical Tool Co., Cincinnati, Ohio, will be exhibited. This machine was designed for grinding carbide, stellite and high-speed steel tools. The degree graduated independent tilting tables are stationary, with table supports integral with the splash pan and base. Table tops have renewable steel wear plates. Each table has safety lip to prevent tools dropping in the wheel recess.

Each wheel guard incorporates a single three-way coolant control valve and the two spouts for each wheel. Grinding spindles and coolant pump are vee-belt motor driven and fully enclosed. Each grinding spindle is mounted in three precision ball bearings.

Crank handles are at the top for independent wheel adjustment. The crank handle moves a splined spindle quill in housing.

Type 10TD uses a 1½ hp motor for two 10-in. plate mounted cup wheels. Type 14TD uses a three hp motor for two 14-in. plate mounted cup wheels.



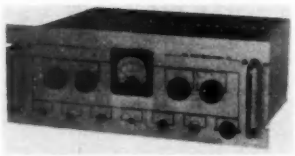
Standard tool grinder.

ASTE-3 Booth—821

Amplifier for Magnetic Oscillograph

On display at the booth of the Brush Development Co., Cleveland, Ohio, will be a direct coupled amplifier, Model BL-962, for use with a magnetic oscillograph. This instrument has a frequency response of from d-c to 100 cps. Voltage gain is sufficient to give one chart mm per mv input. Zero signal drift amounts to not more than one chart mm per hr.

The control panel contains an attenuator with five factor-of-ten positions, gain control, calibrating meter, and controls for determining input voltages. A balancing potentiometer is provided for electrically biasing the oscillograph pen to any position on the chart. In addition, the front panel of the unit contains input and output connections, on-off toggle switch and access holes for screw driver adjustment of grid current control and high frequency response control. Input and output connections are also located at the back of the chassis.



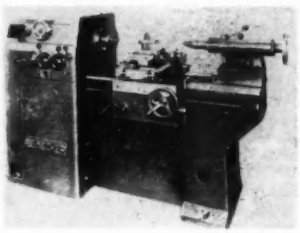
Brush direct coupled amplifier, Model BL-962.

ASTE-4 Booth—1000

Relieving Lathe

A German-built machine, a completely redesigned relieving lathe said to incorporate a new principle in back-up turning, will be demonstrated at the booth of Kurt Orban Co., Inc., New York, N. Y.

Combined in the headstock are the spindle speed gears, the change gears controlling the thread pitch, the number of chip flutes and the lead of the chip flutes. All controls are also grouped at the headstock. All movements of the tool compound are independent of each other.



Orban distributed German relieving lathe.

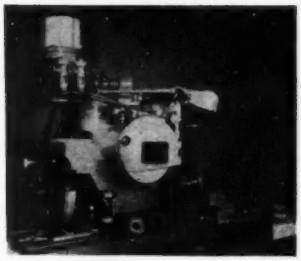
Contact between cam and compound is effected by a closed, large diameter curve. Forward and backward motion of the tool compound is positively controlled, permitting up to 270 strokes per minute. Stroke length can be varied from 0 to ⅝ in. without changing plate cams.

Among the attachments which extend the utility of this new Reinecker lathe

are: a relief-grinding unit, tiltable in three planes and containing a built-in drive motor for the spindle; a newly developed grinding wheel dresser which dresses the wheel without removing the spindles from the machine.

ASTE-5 **Booth—1634**

Surface Grinder



The DoALL Co., Des Plaines, Ill., will exhibit a surface grinder with a gear generating attachment. This unit produces all types of cylindrical gears up to six in. in diam with any pressure angle desired and with any number of teeth up to 100. Only one setup is required. These gears can be ground from the solid or precut as desired.

ASTE-6 **Booth—225**

Heavy-Duty Punches

An extra heavy duty series of punches for piercing ⅜ in. or heavier plate has been announced by Richard Brothers Div., Allied Products Corp., Detroit, Mich. Interchangeability, quick insertion and removal and longer life are some of the features said to be found in these larger punches and retainers.

This series employs a ¾ in. ball lock in the punch retainer providing increased stripping capacity. The lock gives the punch positive radial alignment.

ASTE-7 **Booth—416**

Limit Switches

Micro Switch, Div. Minneapolis-Honeywell Regulator Co., Freeport, Ill., has announced the addition of different actuators to their Type ML Micro-Limit line of heavy duty precision limit switches.

The Type ML switch may be had with an adjustable roller arm actuator, a straight plunger actuator, or a roller-plunger actuator. The roller-plunger actuator is adjustable 90 deg in either direction to place the roller in line with the actuating force.

Underwriters' Laboratories list the Type ML Micro-Limit switches for 20 amp, 110, 220 or 460 v a-c; ½ amp, 115 v d-c; ¼ amp, 230 v d-c; ¾ hp 220 v a-c. Pilot Duty rating is 125 v a-c, six amp normal, 60 amp inrush; 250 v a-c, three amp normal, 30 amp inrush; 480 v a-c, 1.5 amp normal, 15 amp inrush; 600 v a-c, 1.2 amp normal, 12 amp inrush.

All three switches of the Type ML line are said to meet the requirements of NEMA Industrial Control Standards for non-ventilated enclosures of Type IV-ICI-1.2-Watertight and Type VI-ICI-1.15-Submersible. Type ML switches also meet the requirements of NEMA for Type I—General Purpose, Type I-A—Semi-Dust Tight, Type II—Drip Tight, Type III—Weather Resistant and Type V—Dust-Tight.

Micro Switch limit switch, type ML.

ASTE-8 **Booth—746**

Duplicating Machine

Copyflex Model 20, a product of Charles Bruning Co., Inc., Teterboro, N. J., will be demonstrated at the show. Model 20 is a low-cost, medium volume machine. It has a 46 in printing width. The "20" requires a 115 v, 60 cycle a-c power line. It weighs 900 lb, stands 56-in. high, 70-in. wide and 56-in. deep.

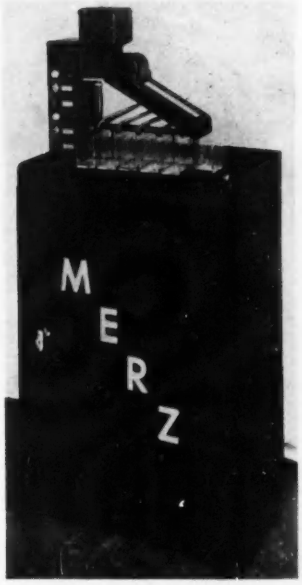
Using translucent originals, drawings, business forms or communications Bruning Copyflex machines are said to speed production of ready-to-use copies. When the original is drawn, typed or written on both sides, or is on opaque material, a Bruning reflex film copy is made in the machine. The reflex film copy can then be used to make any number of prints. Copies can be made in colored lines as well as black and on white or colored paper.

Brunning duplicating machine, Copyflex Model 20.

ASTE-9 **Booth—804**

Electronic Ball Gaging and Segregating Machine

Merz Engineering, Inc., Indianapolis, Ind., has developed controlled automatic gaging equipment for gaging and sorting precision ball bearings at the rate of 3600 units per hour. It will sort into oversize and undersize, also ten categories of ten millionths, or one tenth variation, depending on the sensitivity setting. The Model A is designed to sort balls ranging in size from 1/32 to 7/32 in. diam.



Merz electronic ball gaging and segregating machine.

The machine uses standard electronic parts. It has three fused circuits all marked as to their rating. The motor and power fuses are located on the sorting mechanism beneath their respective switches. The Amplifier-Thyratron fuse is marked and located inside the cabinet on the chassis.

(*Turn to page 534, please*)

Nash 50th Anniversary Models

Ambassador Golden Anniversary Custom Series sedan.

Ambassador and Statesman Have New Bodies with Pinin Farina Styling, Airflex Front Suspension and Other Improvements

GENERAL ENGINE

Type	
No. of cyl.—valve arrangement	
Bore and stroke	
Displacement	
Standard compression ratio	
Maximum brake hp	
Maximum torque	
Type of carburetor	

INTRODUCTION of the 1952 Ambassador and Statesman models marks Nash Motors' 50th Anniversary, its Kenosha, Wis., plant having started production of Rambler automobiles in 1902.

In addition to advanced styling, the 1952 models feature a new type front-end suspension, increased roominess, higher engine horsepower, glass area increased up to 25 per cent, and other improvements.

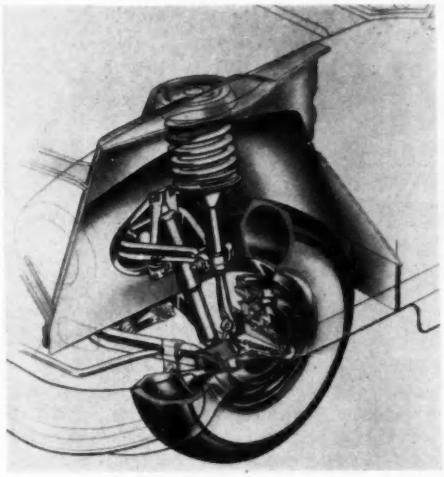
Styled by Pinin Farina, well-known European custom body designer, the new cars emphasize length and sleekness. Enclosed front fenders blend into the sides of the body and continue in line through similarly styled rear fenders. The grille is a one-piece die casting and ribbed bumpers are of a wrap-around type contoured to follow the outline of fenders.

Windshields are of one-piece curved construction, contoured both to hood and fender line. Rear windows are curved and of three-section design previously offered only in custom hardtop convertibles.

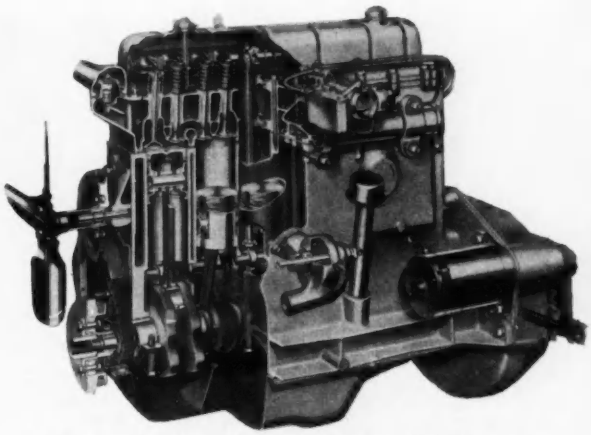
A new type of independent front suspension, called "Airflex Suspension," is a feature of both models. Vertical coil springs are located above heavy steering knuckles which take direct vertical loads. Four direct acting shock absorbers control low frequency spring action.

The Ambassador has an improved six-cylinder, overhead-valve engine with horsepower increased from 115 to 120, and bore enlarged to 3.5 in., increasing total displacement to 252.6 cu in. A horizontal Uniflo-Jet carburetor replaces the downdraft carburetor used in previous Ambassador engines.

Power plant of the 1952 Statesman is a six-cylinder, L-head engine, with horsepower increased from 85 to 88. The piston stroke is increased to 4.25 in., thereby



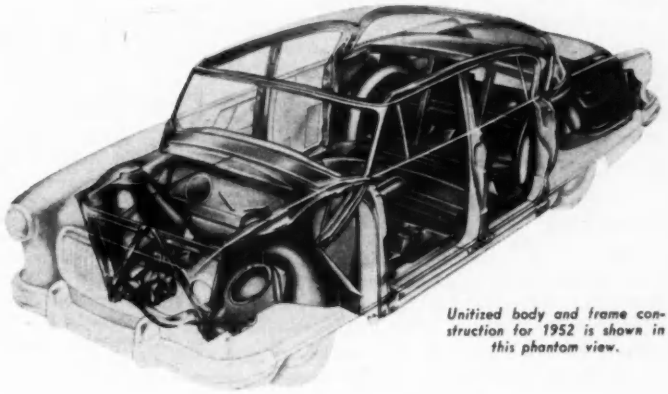
This new independent front suspension is used on both Ambassador and Statesman models.



Part-cutaway view of the Nash Ambassador's overhead-valve engine. Note that a horizontal carburetor has replaced the downdraft type used on previous Ambassador engines.

SPECIFICATIONS

Statesman	Ambassador
In-line	In-line
6, "L"-head	6, "overhead valve"
3⅛" by 4¼"	3½" by 4⅜"
195.6 cu in.	252.6 cu in.
7.0 to 1	7.3 to 1
88 @ 3800 rpm	120 @ 3700 rpm
150 @ 1600 rpm	220 @ 1600 rpm
Uniflo-Jet, downdraft	Direct-draft, horizontal



Unitized body and frame construction for 1952 is shown in this phantom view.

raising total displacement of the engine to 195.6 cu in.

Dual-Range Hydra-Matic is available as optional equipment on both models. Automatic overdrive also is offered as an option. A synchromesh transmission is standard on both cars.

Offered for the first time as optional equipment on all Nash cars is tinted "Solex" safety glass. The greenish-blue tinted glass reduces road glare and heat rays.

The Ambassador has a wheelbase of 121¼ in. while that of the Statesman is 114¼ in.

Tail lights and directional signals are integrated as part of the distinctive rear fenders. The right rear tail light is hinged for access to the fuel tank.

The completely redesigned instrument panel has Vinyl leather over an obstruction free section running almost the full width of the new panel in custom models. Instruments, rearranged, are protected from glare in a recessed sun-shield extension of the cowl line. Dials and numerals are painted on a one-piece plastic panel with the entire panel edge-lighted.

Passenger comfort has been improved by moving the passenger compartment forward in relation to the wheel centers resulting in increased front and rear seat width, headroom and legroom. Larger front and rear door openings are positioned for easy entry.

Front and rear seats have been redesigned with a new system of coil springing and treatment with flocking material. Front and rear arm rests and large center arm rest in the rear seat are standard equipment on custom models, optional on others.

The new medium and lowest-priced Nash cars are available in "super" and "custom" model four-door trunk sedans, two-door trunk sedans, and later custom two-door hard-top convertible models.

AIRBRIEFS

By ROBERT McLARREN

Feast or Famine

During periods of lean military orders, the theory is that the aircraft manufacturing industry lives off its commercial business. In fact, military and commercial orders go hand-in-hand with the U. S. aircraft industry now at work on a total backlog of 400 civil transport aircraft, the largest in its history. This comes at a time when its military backlogs also are bulging beyond capacity. In contrast, during recent postwar years major transport builders scheduled a group of aircraft for production when as little as one-half of them were actually sold. At present civil aircraft construction is closely controlled by the Office of Aviation Defense Requirements of the Civil Aeronautics Administration and an airline wishing to place an order for a transport today could not expect delivery until late 1954 or early 1955.

Final Link

The new fighter aircraft recently announced comprise the final link in the transition from piloted to pilotless aircraft, according to Pentagon sources. Such aircraft as the Douglas XF4D-1 Skyray and the new Convair YF-102 delta-wing interceptor are designed for extremely rapid rate-of-climb to enemy bomber altitude, a very heavy firepower of rockets and a swift return to base through the course of which the pilot will do little more than "monitor" the operation. Both the Navy carrier Skyray and the Air Force F-102 will be heavily equipped with electronic guidance, control and armament equipment using both ground and target-operated radars. These new delta-wing types will perform their complete missions in only 30 minutes and events will move so quickly as to far surpass human control. The step from this use of the pilot as fundamentally an airborne overseer to the pilotless missile will be a small one.

Plastic Tooling

Lockheed Aircraft Corp. has revealed results of its two-year program in the use of phenolic resin dies as a replacement for conventional Kirksite material and reports savings averaging 50 per cent. These savings arise from economies in both the time and the amount of material needed for die fabrication. For example, a huge die that would have weighed 17½ tons in Kirksite was made of phenolic resin at a weight of only 1.75 tons and the fabrication time was cut in half in the process. Longer range savings also are expected in the fact that plastic die life is virtually unlimited insofar as the die can be quickly and easily repaired when required. Plastic tooling was pioneered in Germany during the war and introduced initially in the U. S. aircraft industry at Republic Aviation.

Army Sold on 'Copters

The astonishingly complete conviction of the U. S. Army of the potentiality of the helicopter has been crystallized by Brig. Gen. Gerald J. Higgins, Chief of the Organization and Training Division of Operations in Army headquarters. General Higgins says flatly that the U. S. Army hopes eventually to replace its trucks with helicopters. Although admittedly a very long range undertaking, this new policy decision symbolizes the amazing strides made by the helicopter in only a decade. General Higgins points out that the replacement of trucks by helicopters, in addition to their more obvious advantages, will mean enormous savings in time, manpower and materials needed for the construction of truck roads in wartime. At the same time, he revealed that the Army is also vitally interested in the one-man helicopter for use as the vehicle for small patrol action, although he emphasizes that the Army has no plans for making every foot soldier a flying combatant.

Ground Network

Something of the enormous complexity of modern air transportation that the customer never sees is available in the announcement by United Air Lines that it is currently adding 6000 more miles of teletypewriter circuits which, upon completion, will give it a total of 26 000 miles of circuitry over its nation-wide system. Although used principally for reservation work, the system also carries a substantial volume of normal internal communication work. The private line system enables coast-to-coast reservations to be made and confirmed while the customer waits on the phone, usually no longer than five minutes.

(*Turn to page* 458, *please*)

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Publications AVAILABLE

New Industrial Literature listed in this department is obtainable by subscribers through the Editorial Department of AUTOMOTIVE INDUSTRIES. In making requests please be sure to give the NUMBER of the item concerning the publication desired, your name and address, company connection and title.

H-61 Die Makers Supplies

E. A. Baumbach Mfg. Co.—What is said to be the largest catalog of die sets and die makers' supplies ever published, has just been released. The catalog contains much valuable information about die sets and supplies.

H-62 Plastic-Treated Paper

E. I. duPont de Nemours & Co., Inc.—A technical bulletin called "Neoprene Treated Paper," describes the properties—notably wet strength, internal bond and impact strength, and chemical resistance — that can be obtained in various kinds of paper by adding a few per cent of neoprene rubber latex to the paper pulp. A table of possible applications suggests several uses.

H-63 V-Band Couplings

Marman Products Co., Inc.—Catalog 40 gives material on the function, selection, specifications and design of the company's V-band couplings.

H-64 Machinery Lubrication

Alemite, Div. Stewart-Warner Corp.—The Accumeter method of centralized lubrication for all types of machinery is described and illustrated in a recently issued booklet. The material includes a general description, principles of operation, application data, specifications and accessories.

H-65 Resistance Thermometers Buyer's Guide

Leeds & Northrup Co.—The entire line of general-purpose and specialized Thermohms (resistance thermometers) that are being used to detect temperatures between −325 and +1000 F with accuracies from ±0.018 F to ±3.0 F are fully described and illustrated in a 36-page catalog, EN-S4, and buyer's guide, "Thermohms, Assemblies, Parts and Accessories."

H-66 Civil Aircraft Identification

Vickers, Inc.—Recently prepared is a plastic wallet size card which lists the most recent I.C.A.O. recognized civil aircraft identification codes. The countries are shown in alphabetical order on one side together with the registration key. The second side lists the keys in alphabetical order beside the country of registry.

H-67 Electronic Surge Comparison Tester

Westinghouse Electric Corp.—Complete information on the industrial electronic surge comparison tester is now available in an eight-page descriptive

(*Turn to page* 429, *please*)

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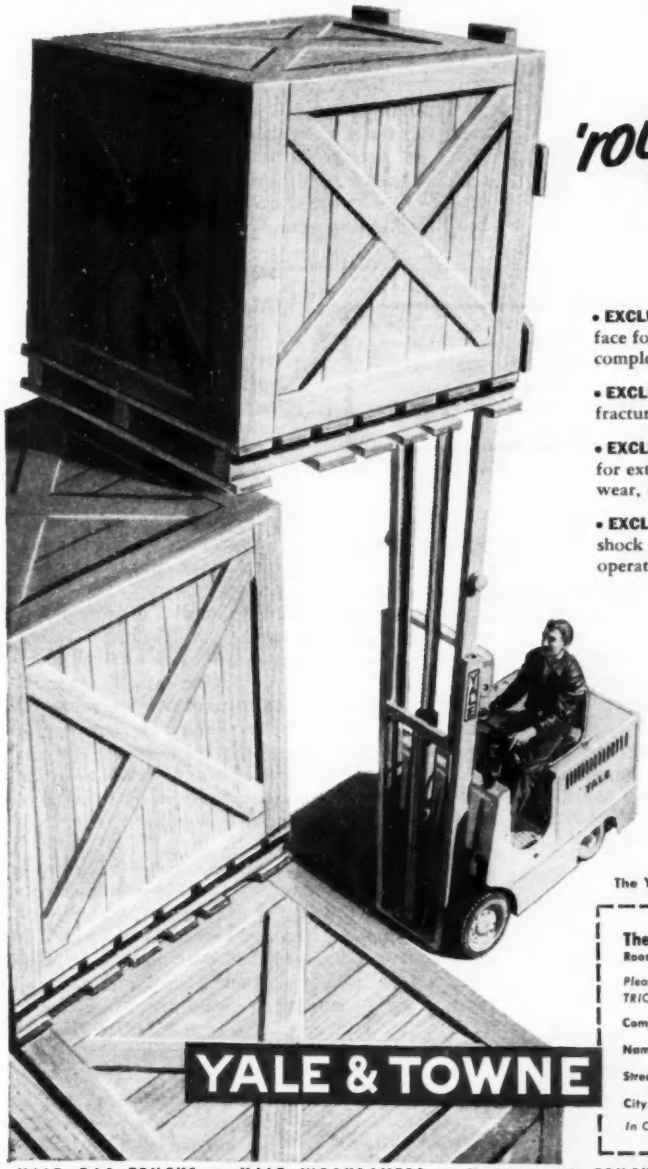

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The BUSINESS PULSE

General Business Level Holding Up Well. Marked Improvement Shown in Supplies of Some Strategic Materials. Curbs on Construction Activity Have Been Relaxed. Extension of the Defense Production Act Foreseen.

Lower Price Levels

Incoming data reveal that the balance of forces is still on the deflationary side. While the general level of business has been well maintained, the situation differs from industry to industry, and in a number of nondefense fields output has fallen below that of a year ago because of a continued lag in consumer demand. In certain branches of the textile industry, conditions have been described as the worst in twenty years. February figures show that electric power production made exceptionally small gains above the output levels a year earlier. Department store sales have been well below those in the like period of 1951, although the comparison is misleading to some extent because of the "scare buying" wave of early 1951. Unemployment continues to be a disturbing problem in those areas where cutbacks in output for civilian use have not yet been offset by increases in defense production.

This Survey is Prepared Exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Company of New York.

Deflationary pressure, however, is most clearly evident in the field of prices. By the end of February, a declining tendency in the weekly commodity index of the Bureau of Labor Statistics had carried the figure to the lowest level since December, 1950. The wholesale price index of the Guaranty Trust Co. has been declining steadily since the middle of October, and the figure for February 15 is more than 14 per cent below the all-time peak reached on the comparable date in 1951. This weakness in commodities was accompanied by a series of declines in stock prices during February.

Under a ruling issued by Charles E. Wilson, Defense Mobilizer, the Department of Labor has designated eighteen large industrial centers and five smaller ones as areas of "labor surplus" eligible for special consideration in the allocation of defense contracts. A special inter-agency committee administering the program will examine these areas to determine whether they have the types of manpower and productive facilities suitable for defense contracts. The committee will then recommend the types of contracts to be awarded to each of these centers and the percentages by which bids from these areas can exceed those from others and still be acceptable. Price differentials ranging from 10 to 15 per cent in favor of the labor-surplus areas are reportedly being considered. The major centers include New York, Detroit, Providence, and fifteen other sections, mainly in the Middle Atlantic and New England zones.

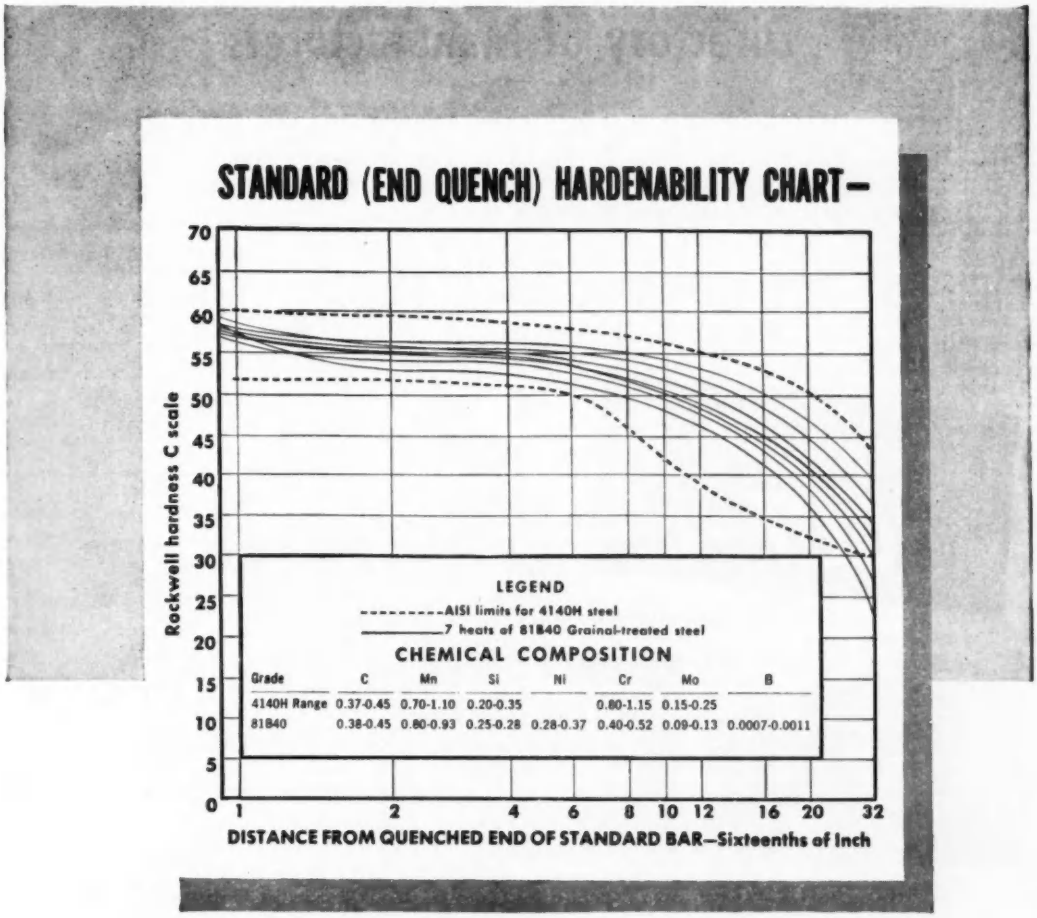
Supply Situation Improved

The supply situation with respect to some strategic commodities has shown a marked improvement. In the case of natural rubber, for example, the Government's stockpile has reached a sufficient level, in the judgment of officials, to warrant an easing of curbs on consumption and to permit resumption of private trading. The buying and selling of natural rubber had been a Government monopoly for more than a year.

Similarly, as a result of measurable improvement in the lead-supply situation, it is believed that restrictions on consumption may soon be removed and inventory curbs relaxed. Increased allotments of copper and aluminum for the second quarter of this year have been announced for manufacturers of civilian goods in the "less essential" categories, accompanied, however, by slight reductions in allotments for "more essential" civilian products. It is considered possible that allotments of some metals may be enlarged after the second quarter.

Curbs on construction activity also have been relaxed. Authority was granted in February, effective in July, for the building of 645 "community projects" such as churches, jails, and homes for the aged. In addition, it was disclosed that, beginning in April, an effort will be made to allot materials for virtually all business and community projects, with the exception of purely recreational or amusement facilities, on which work had started before the imposition of restrictions. According to Charles Sawyer, Secretary of Commerce, these new rulings are an indication that "we are approaching the points where our capacity to produce will permit us to reduce controls."

(Turn to page 530, please)



Consistent Hardenability obtained in Boron Steels made with GRAINAL ALLOYS

The most common test for boron steels is measurement of hardenability by the end quench or Jominy hardenability test. Today's steel substitutions are made on the basis of similar hardenability since a reasonable prediction can thus be made of the hardness and strength of a given part.

The curves above show the relationship between the hardenability of a series of seven heats of 81B40 steel and the hardenability band for 4140H steel, which it often replaces. The 81B40 heats were made in one electric furnace shop, and the remarkably consistent hardenability shown by the curves was obtained by the use of Grainal alloy as the means of adding the boron.

Consistent hardenability means consistent strength and hardness after heat treatment, which is the aim of every fabricator. The best proof that the Grainal alloys insure this objective is found in the successful use of three million tons of Grainal-treated steels.

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CHEMICALS AND METALS

Directory of Manufacturers

(*Continued from page 338*)

S.A. des Automobiles PEUGEOT, Paris 8, France.
Regie Nationale des Usines RENAULT, Billancourt, Seine, France.
SIMCA Soc. Industrielle de Mecanique et Carrosserie Automobile, Nanterre, Seine, France.
Automobiles TALBOT-Darracq S.A., Suresnes, Seine, France.

GERMAN

Autowelo-Werk BMW, Eisenach, Thuringen, Germany.
DAIMLER-BENZ A.G. (Mercedes-Benz), Stuttgart-Unterturkheim, Germany.
FORD-Werke AG, Cologne, Germany.
GOLIATH-Werk G.M.B.H., Bremen 11, Osterdeich 222, Germany.
GUTBROD Motorenbau GMBH, Calw/Schwarzwald, Germany.
LLOYD Motoren Werke GMBH, Bremen, Vulkanstr, Germany.
MERCEDES - BENZ, See Daimler-Benz A.G.
Adam OPEL, Aktiengesellschaft, Russelsheim, Main, Germany.
Dr. Ing. h.c. F. PORSCHE K.G., Stuttgart-Zuffenhausen, Germany.
VOLKSWAGENWERK GmbH, Wolfsburg, Germany.

ITALIAN

ALFA ROMEO, via M.U. Traiano, 32, Milano, Italy.
Scuderia FERRARI, Casella Postale 232, Modena, Italy.
F.I.A.T. S.A., Corso IV Novembre 300, Torino, Italy.
LANCIA & Co., via Monginevro 99, Torino, Italy.
Officien Alfieri MASERATI S.A., Via Ciro Menotti 322, Modena, Italy.

JAPANESE

DATSUN, See Nissan Motor Co.
KOHSOKU Engineering Co., Ltd. (Ohta), Higashi - Shinagawa, Shinagawa - ku, Tokyo, Japan.
NISSAN Motor Co., Ltd., Shiba-Tamura-Cho, Minato-ku, Tokyo, Japan.
OHTA, See Kohsoku Engineering Co., Ltd.
TOYOTA Motor Co., Ltd., (Toyopet), Chuo-ku, Tokyo, Japan.

SPANISH

E.N.A., S.A. (Pegaso), Barcelona, Spain.

SWEDISH

SVENSKA Aeroplan Aktiebolaget, Trollhattan, Sweden.
Aktiebolaget VOLVO, Goteborg, Sweden.

U. S. ROTARY WING AIRCRAFT

For details of their products see page 245.

AMERICAN Helicopter Co., Inc., Manhattan Beach, Calif.
BELL Aircraft Corp., Buffalo 5, N. Y.
DOMAN Helicopters, Inc., Danbury, Conn.
GYRODYNE Co. of America, Inc., New York 5, N. Y.
HILLER Helicopters, Palo Alto, Calif.
KAMAN Aircraft Corp., Windsor Locks, Conn.
McDONNEL Aircraft Corp., St. Louis 3, Mo.
PIASECKI Helicopter Corp., Morton, Pa.
ROTOR-CRAFT Corp., Glendale 1, Calif.
SEIBEL Helicopter Co., Inc., Wichita, Kan.
SIKORSKY Aircraft Div., United Aircraft Corp., Bridgeport 1, Conn.

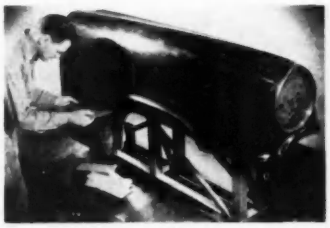
U. S. CIVIL AND MILITARY AIRCRAFT

For details of their products see pages 242-244, 246-247.

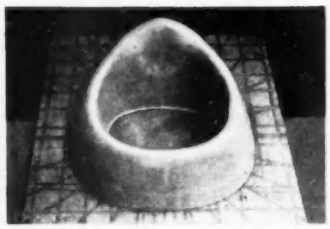
AERO Design and Engineering Co., Bethany, Okla.
AIRCRAFT Manufacturing Co. (Texas Bullet), Tyler, Tex.
ANDERSON, GREENWOOD & Co., Houston, Tex.
BAUMANN Aircraft Corp., Pacoima, Cal.
BEECH Aircraft Corp., Wichita 1, Kan.
BELLANCA Aircraft Corp., New Castle, Del.
BOEING Airplane Co., Seattle 14, Wash.
CESSNA Aircraft Co., Wichita 15, Kan.
CHANCE VOUGHT Aircraft Div., United Aircraft Corp., Dallas, Tex.
CHASE Aircraft Co., Inc., West Trenton, N. J.
CONSOLIDATED VULTEE Aircraft Corp., (Convair), San Diego 12, Calif.
DOUGLAS Aircraft Co., Inc., Santa Monica, Calif.
FAIRCHILD Aircraft Div., Fairchild Engine & Airplane Corp., Hagerstown, Md.
FUNK Aircraft Co., Coffeyville, Kan.
GRUMMAN Aircraft Engineering Corp., Bethpage, L. I., N. Y.
JAMIESON Aircraft Co., DeLand, Fla.
LOCKHEED Aircraft Corp., Burbank, Calif.
The Glenn L. MARTIN Co., Baltimore 3, Md.
McDONNELL Aircraft Corp., St. Louis 3, Mo.

(*Turn to page 422, please*)

model and tooling costs CUT with Rezolin Tool-Plastic
the New Non-Shrink Casting Resin

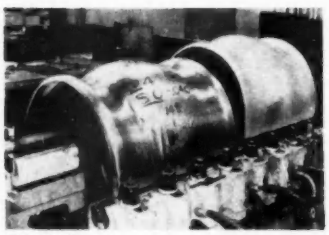


DIMENSIONAL STABILITY and close tolerances are assured in Tool-Plastic Model, as it is not effected by temperature and atmospheric changes. Photo Courtesy Ford Motor Company.



PLASTIC MODEL air intake nose for North American Aviation has greater dimensional stability. Note metal locators installed using Rezolin Quick-Set.

TEST MODELS of 1952 Mercury Hood produced on Tool-Plastic Die. Photo Courtesy Warren Plastics & Engineering, Inc.



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Our first consideration, of course, will be the performance characteristics you need in your product. At the same time, however, our engineers keep one eye glued to the modern spring-making machinery in our mill. Sometimes, a seemingly unimportant design change will enable us to speed up production remarkably—with a corresponding savings in cost to you.

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TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
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- **Lubricity** — to reduce friction between the tool point and the work piece. The lubricating qualities of the cutting fluid make a big difference.
- **Anti-Weld Properties** — to prevent build-up of metal on the tool and scuffing of the work piece. The amount of anti-weld agent in the fluid is a critical factor and depends on the job.

These factors and others are all inter-related. Over-simplification of the subject and the cutting fluid can lead to trouble. Let a Stuart sales-engineer show you what can be accomplished with the *right* cutting fluid.

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TIME-TESTED Cutting Fluids and Lubricants

Directory of Manufacturers

(*Continued from page 420*)

MEYERS Aircraft Co., Tecumseh, Mich.
MOONEY Aircraft, Inc., Wichita, Kan.
NORTH AMERICAN Aviation, Inc., Los Angeles 45, Calif.
NORTHROP Aircraft, Inc., Hawthorne, Calif.
PIPER Aircraft Corp., Lock Haven, Penna.
REPUBLIC Aviation Corp., Farmingdale, L. I., N. Y.
RYAN Aeronautical Co., San Diego, Calif.
TEXAS BULLET, See Aircraft Manufacturing Co.

FOREIGN CIVIL AND MILITARY AIRCRAFT

BRITISH

For details of their products see pages 242-244, 246-247.

AIRSPEED Div., The De Havilland Aircraft Co., Ltd., Christchurch, Hampshire, Eng.
Sir W. G. ARMSTRONG WHITWORTH Aircraft, Ltd., Baginton, nr. Coventry, Eng.
AUSTER Aircraft, Ltd., Rearsby, Leicester, Eng.
BLACKBURN & General Aircraft Ltd., Brough, East Yorks, Eng.
BOULTON PAUL Aircraft Ltd., Wolverhampton, Eng.
The BRISTOL Aeroplane Co., Ltd. Filton House, Bristol, Eng.
The De HAVILLAND Aircraft Co., Ltd., Hatfield, Hertfordshire, Eng.
The De HAVILLAND Aircraft of Canada, Ltd., Toronto, Ontario, Canada.
De HAVILLAND Aircraft Proprietary Ltd., Bankstown, N.S.W., Australia.
The ENGLISH ELECTRIC Co., Ltd., Wharton Aerodrome, Lancashire, Eng.
GLOSTER Aircraft Co., Ltd., Hucclecote, Gloucestershire, Eng.
HANLEY PAGE, Ltd., Cricklewood, London, N.W.2, Eng.
HAWKER Aircraft Ltd., Kingston-Upon-Thames, Surrey, Eng.
PERCIVAL Aircraft Ltd., Bedfordshire, Eng.
A. V. ROE & Co., Ltd., Middleton, Manchester, Eng.
SAUNDERS-ROE, Ltd., Osborne, East Cowes, Isle of Wight, Eng.
SCOTTISH AVIATION, Ltd., Preswick Airport, Ayrshire, Eng.
SHORT BROTHERS & Harland Ltd., Queens Island, Belfast, Ireland.
VICKERS - ARMSTRONG, Ltd., Weybridge, Surrey, Eng.
WESTLAND Aircraft Ltd., Yoevil, Somerset, Eng.

BELGIAN

Avions FAIREY S.A., Gosselies-Lez-Charlerol, Belgium.

FRENCH

S. A. des Ateliers d'Aviations Louis BREGUET, Paris 16, France.
Societe Nationale de Constructions Aeronautiques Du Nord, (S.N.C.A.N.), Paris 17, France.
Societe National de Constructions Aeronautiques du Sud-Est, (S.N.C.A.S.E.), Paris 8, France.
Societe Nationale de Constructions Aeronautiques du Sud-ouest, (S.N.C.A.S.O.), Paris 16, France.

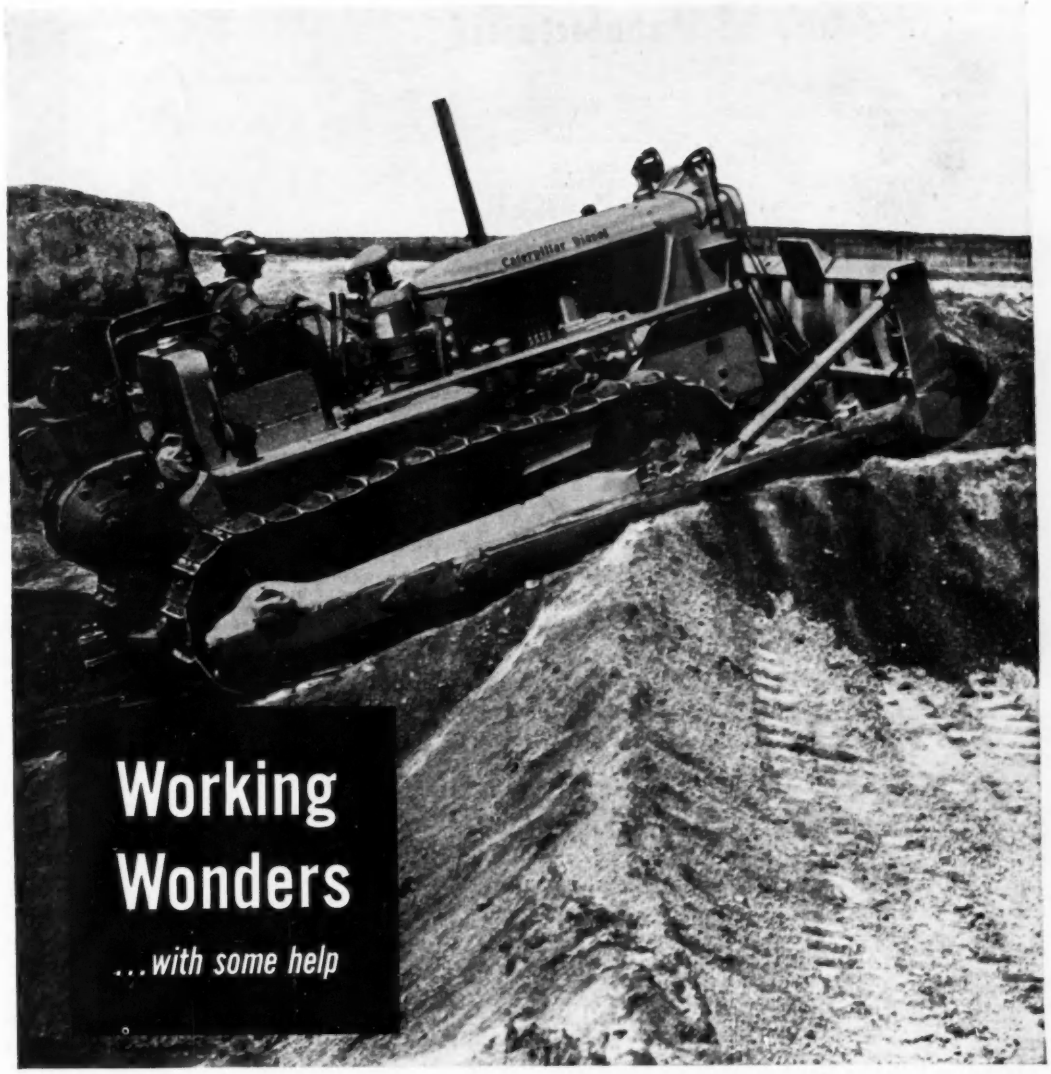
ITALIAN

Aeronautica MACCHI S.P.A., Varese, Italy.
FIAT Societa per Azioni, Torino, Italy.
PIAGGIO & C. Soc. p. Azioni, Genova, Italy.

SPANISH

Construcciones Aeronauticas S.A., (S.A.S.A.), Madrid, Spain.
La HISPANO Aviacion S.A., Madrid, Spain.

(*Turn to page 424, please*)



Working Wonders

...with some help

The tremendous strength of those big yellow machines built by Caterpillar demands superior strength in each component part.

Since 1923, BCA Bearings have been original equipment on Caterpillar Diesel Tractors . . . Motor Graders . . . Earth-moving Equipment. For three decades, BCA engineering has contributed to Caterpillar's enviable reputation for outstanding performance on the toughest jobs.

Whatever *your* bearing requirements—specify the best—BCA Bearings. They are *performance* proved.

BEARINGS COMPANY OF AMERICA

LANCASTER · PENNSYLVANIA

BCA

Radial, Angular, Contact-Thrust BALL BEARINGS

Directory of Manufacturers

(Continued from page 422)

SWEDISH

Svenska Aeroplan Aktiebolaget (SAAB) Linkoping, Sweden.

AIRCRAFT GAS TURBINES

For details of their products see pages 248-249.

UNITED STATES

ALLISON Div., General Motors Corp., Indianapolis 6, Ind.
BOEING Airplane Co., Seattle 14, Wash.
CONTINENTAL Aviation & Engineering Corp., Muskegon 82, Mich.
GENERAL ELECTRIC Co., Aircraft Gas Turbine Div., West Lynn, Mass.
PRATT & WHITNEY Aircraft Div. of United Aircraft Corp., East Hartford 8, Conn.
WESTINGHOUSE Electric Corp., Aviation Gas Turbine Div., Lester, Philadelphia 13, Pa.
WRIGHT Aeronautical Corp., Wood-Ridge, New Jersey.

BRITISH

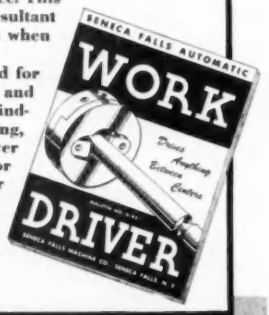
ARMSTRONG SIDDELEY Motors Ltd., Coventry, Eng.
BRISTOL Aeroplane Co., Ltd., Filton House, Bristol, Eng.
De HAVILAND Aircraft Co., Ltd., Hatfield, Hertfordshire, Eng.
D. NAPIER & Son, Ltd., Acton, London W.3, Eng.
ROLLS-ROYCE, Ltd., Derby, England.

SENECA FALLS
Automatic
WORK DRIVER
Drives Anything Between Centers

Jaws with angular serrations ...NOW STANDARD

These self-centering, quick-acting Drivers have long demonstrated their ability to eliminate dogging time and to enable one operator to attend multiple machines. Their application has been widened with development of a new jaw having serrations milled at a suitable angle. These angular serrations provide an overlapping contact for surer and quicker grip on smooth finished, as well as hot rolled stock and forgings having a relatively hard surface. This positive grip eliminates slippage and resultant tool breakage . . . especially important when costly carbide tools are used.

Seneca Falls Work Drivers are designed for use on any engine or multiple-tool lathe and for certain work on turret lathes and grinding machines. In addition to time-saving, the Seneca Falls Automatic Work Driver provides greater safety for the operator since there are no projecting screws or sharp corners to catch clothing or injure hands. Made in 18 standardized models for work diameters ranging from ¼ to 6⅞ inches. Write for Bulletin D-43.



SENECA FALLS MACHINE CO., SENECA FALLS, N. Y.

U. S. AIRCRAFT ENGINES

RECIPROCATING TYPE

For details of their products see pages 250-251.

AIRCOOLED Motors, Inc. (Franklin), Syracuse 8, N. Y.
CONTINENTAL Motors Corp., Aircraft Engine Div., Muskegon, Mich.
FRANKLIN, See Aircooled Motors, Inc.
GLADDEN Products Corp. (Kinner's), Glendale 4, Calif.
JACOBS Aircraft Engine Co., Pottstown, Penna.
KINNER, See Gladden Products Corp.
LYCOMING-SPENCER Div., Avco Manufacturing Corp., Williamsport 38, Penna.
PRATT & WHITNEY Aircraft, Div. United Aircraft Corp., East Hartford 8, Conn.
WRIGHT Aeronautical Corp., Div. Curtiss-Wright Corp., Wood-Ridge, N. J.

AUTOMOTIVE GASOLINE ENGINES

For details of their products see pages 272-281.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wisc.
The AUTOCAR Co., Ardmore, Penna.
BRENNAN Motor Mfg. Co., Syracuse 2, N. Y.
The BUDA Co., Harvey, Ill.
CHEVROLET-Central Office Div., General Motors Corp., Detroit 2, Mich.
CHRIS-CRAFT Corp., Algonac, Mich.
CHRYSLER Corp., Marine & Industrial Engine Div., Detroit 31, Mich.
CLIMAX Engine & Pump Mfg. Co., Clinton, Iowa.
CONTINENTAL Motors Corp., Muskegon 82, Mich.
DODGE Division, Chrysler Corp., Detroit 31, Mich.
FORD Motor Co., Dearborn, Mich.
GMC Truck & Coach Div., General Motors Corp., Pontiac 11, Mich.
GRAY MARINE Motor Co., Detroit 7, Mich.
HALL-SCOTT Motor Div., ACF-Brill Motors Co., Berkeley 10, Calif.
HERCULES Motors Corp., Canton 2, Ohio.
INTERNATIONAL HARVESTER Co., Chicago 1, Ill.
KERMATH Manufacturing Co., Detroit 8, Mich.
The LATHROP Engine Co., Mystic, Conn.
LE ROI Company, Milwaukee 14, Wisc.
LYCOMING-SPENCER Div., AVCO Mfg. Corp., Williamsport, Penna.
MACK Manufacturing Corp., New York 1, N. Y.
MINNEAPOLIS-MOLINE Co., Minneapolis 1, Minn.
NORDBERG Manufacturing Co., Milwaukee 7, Wisc.
The OLIVER Corp., Charles City, Iowa.
PACKARD Motor Car Co., Marine Div., Detroit 32, Mich.
The PALMER Bros. Engine Corp., Cos Cob, Conn.
RED WING Motor Co., Red Wing, Minn.
REO Motors, Inc., Lansing 20, Mich.
SCRIPP'S Motor Co., Detroit 8, Mich.
STERLING Engine Co., Buffalo 13, N. Y.
UNIVERSAL Motor Co., Oshkosh, Wisc.
The VIMALBERT Co., Ltd., Jersey City 5, N. J.
WAUKESHA Motor Co., Waukesha, Wisc.
The WHITE Motor Co., Cleveland 1, Ohio.
WILLYS-OVERLAND Motors, Inc., Toledo 1, Ohio.
WISCONSIN Motor Corp., Milwaukee 14, Wisc.
ZEPHYR Products, Kansas City 6, Mo.

AUTOMOTIVES DIESEL ENGINES

For details of their products see pages 282-287.

ATLAS, See National Supply Co.

(Turn to page 427, please)

roll your own tubing from strip

In one continuous, automatic operation, the AEF Tube Mill converts steel strip into the finest welded tubing. Each mill is a compact, high-speed unit that will produce the highest grade tubing with a minimum of labor, over-head, and capital investment. Over 30 years of successful performance demonstrate that the economy of operation—at ⅛ of one cent per each foot length of tubing—permits the return of the original investment in intervals ranging from 28 days to 6 months. It is impossible to purchase your pipe and tubing requirements to compete with rolling your own on an AEF Tube Mill. Our engineers will plan your installation and give your operators training in operation and procedures. Write us giving the sizes and quantities of tubing needed and the uses for which it is intended. Tubing is guaranteed to be plus or minus .003″ in diameter and concentricity. AEF Tube Mills are manufactured in three sizes, to produce pipe and tubing with wall thicknesses of .025″ to .157″ and outside diameters from ½″ to 4½″ O.D.

AMERICAN ELECTRIC FUSION CORPORATION

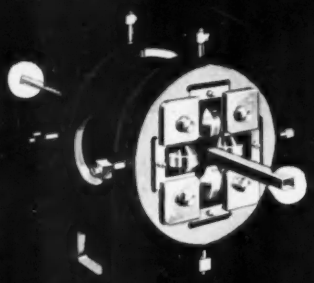
CHICAGO 47, ILLINOIS, U. S. A.

AMERICAN ELECTRIC FUSION CORP.

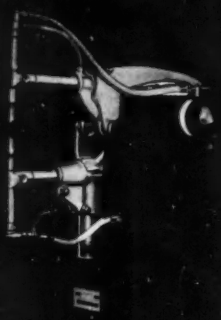
MANUFACTURERS OF ELECTRICAL WELDING EQUIPMENT

2600 DIVERSEY AVENUE — CHICAGO 47, ILLINOIS, U.S.A.

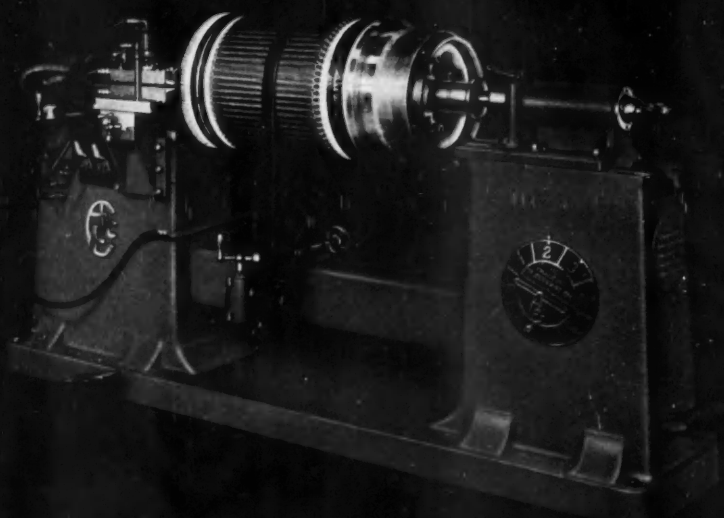
Round tubing produced by AEF Tube Mills can be formed into square, triangular, or other sections with the AEF Turkshead. Operates at Tube Mill speed. Specially formed tubing is cut by a special cutter, interchangeable with the standard AEF Cut-off Unit.



All AEF Spot Welders are designed to permit the maximum adjustment to meet specific individual requirements. They may be operated by manual foot pressure or by automatic air. Each Spot Welder is equipped with the patented "Koldpoint" Electrode Cooling System. The "Koldpoint" increases efficiency and production speed and insures a low cost of operation. It lengthens the life of the welding tips, reduces time and expense of point dressing, and produces more uniform welding. AEF Spot Welders are manufactured in three mechanical size groups and in six transformer capacities.



· QUALITY · MACHINES ·



The CBG - 24 Brazing Machine—developed originally by AEF for a leading Diesel locomotive manufacturer — is built for brazing and silver soldering coil ends of generator and motor armatures. Accommodates armatures of 18″ to 42″ in diameter and can be adapted with slight modification to any diameter requirements. The CBG-24 may also be used as a source of power supply for portable brazing equipment—and for other brazing and soldering applications.

Directory of Manufacturers

(*Continued from page 424*)

The BUDA Company, Harvey, Ill.
CATERPILLAR Tractor Co., Peoria 8, Ill.
CONTINENTAL Motors Corp., Muskegon, Mich.
CUMMINS Engine Co., Inc., Columbus, Ind.
Detroit Diesel Engine Div., GENERAL MOTORS Corp., Detroit 28, Mich.
FACEOL-LELAND, See Twin Coach Co.
FAIRBANKS, MORSE & Co., Chicago 5, Ill.
GRAY MACHINE Motor Co., Detroit 7, Mich.
HALLETT Manufacturing Co., Englewood, Calif.
HARNISCHFEGER Corp., Diesel Div., (P&H), Crystal Lake, Ill.
HERCULES Motors Corp., Canton 2, Ohio.
HILL Diesel Engine Corp., Lansing 3, Mich.
INTERNATIONAL HARVESTER Co., Chicago 1, Ill.
KERMATH Manufacturing Co., Detroit 8, Mich.
MACK-International Motor Truck Corp., New York 1, N. Y.
MURPHY Diesel Co., Milwaukee 14, Wisc.
The NATIONAL Supply Co. (Atlas & Superior), Springfield 99, Ohio.
The OLIVER Corp., Charles City, Iowa.
P&H, See Harnischfeger Corp.
RED WING Motor Co., Red Wing, Minn.
SCRIPPS Motor Co., Detroit 8, Mich.
R. H. SHEPPARD Co., Inc., Hanover, Pa.
STERLING Engine Co., Buffalo 13, N. Y.
SUPERIOR, See National Supply Co.
TWIN COACH Co. (Fageol-Leland), Kent, Ohio.
WAUKESHA Motor Co., Waukesha, Wisc.

DIESEL ENGINES FOR DIESEL-ELECTRIC LOCOMOTIVES

For details of their products see page 289.

AMERICAN Locomotive Co. (Alco), Schenectady 5, N. Y.
The BALDWIN - Lima - Hamilton Corp., Philadelphia 42, Penna.
The COOPER-BESSEMER Corp., Mt. Vernon, Ohio.
ELECTRO-MOTIVE Div., General Motors Corp., La Grange, Ill.
FAIRBANKS, MORSE & Co., Chicago 5, Ill.

U. S. SMALL GASOLINE ENGINES

For details of their products see pages 288-289.

BRIGGS & STRATTON Corp., Milwaukee 1, Wisc.
CLINTON Machine Co., Maquoketa, Iowa.
CONTINENTAL Motors Corp., Air Cooled Engine Div., Detroit 14, Mich.
CUSHMAN Motor Works, Inc., Lincoln 1, Neb.
GLADDEN Products Corp., Glendale 4, Calif.
HOMELITE Corp., Port Chester, N. Y.
JACOBSEN Manufacturing Co., Racine, Wisc.
KERMATH Manufacturing Co., Detroit 8, Mich.
KOHLER CO., Kohler, Wis.
The LAUSON Co. Div., Hart-Carter Co., New Holstein, Wisc.
LE ROI Company, Milwaukee 14, Wisc.
McCULLOCH Motors Corp., Los Angeles 45, Calif.
D. W. ONAN & Sons Inc., Minneapolis 5, Minn.
REO Motors, Inc., Lawn Mower Div., Lansing 20, Mich.
SALSBURY, See Wayne Manufacturing Co.
UNITED Engine Co., Lansing, Mich.
UNIVERSAL Motor Co., Oshkosh, Wis.
WAYNE Manufacturing Co. (Salsbury), Pomona, Calif.
WEST BEND Aluminum Co., West Bend, Wisc.
WISCONSIN Motor Corp., Milwaukee 14, Wisc.

(*Turn to page 429, please*)

Specify AA ALUMINUM CASTINGS

for POROSITY-FREE QUALITY

Our scientific procedure of determining gating procedure, rate of flow, the size, shape and location of risers, etc., was developed to produce leak-proof pressure castings. But since it is standard operating procedure in our foundry, *every* casting we produce is porosity-free quality . . . and at no higher cost to you.

for SCIENTIFIC CASTING PRODUCTION . . . NO "CUT AND TRY"

Because each step of the casting procedure is determined scientifically *before* the pattern enters the foundry, "cut and try" has been completely eliminated. This assures you of predetermined quality and rate of production. It also means that production gets started long before normal and without annoying delays to your production schedules.

for LARGE VOLUME CAPACITY . . . COMPLETE FACILITIES

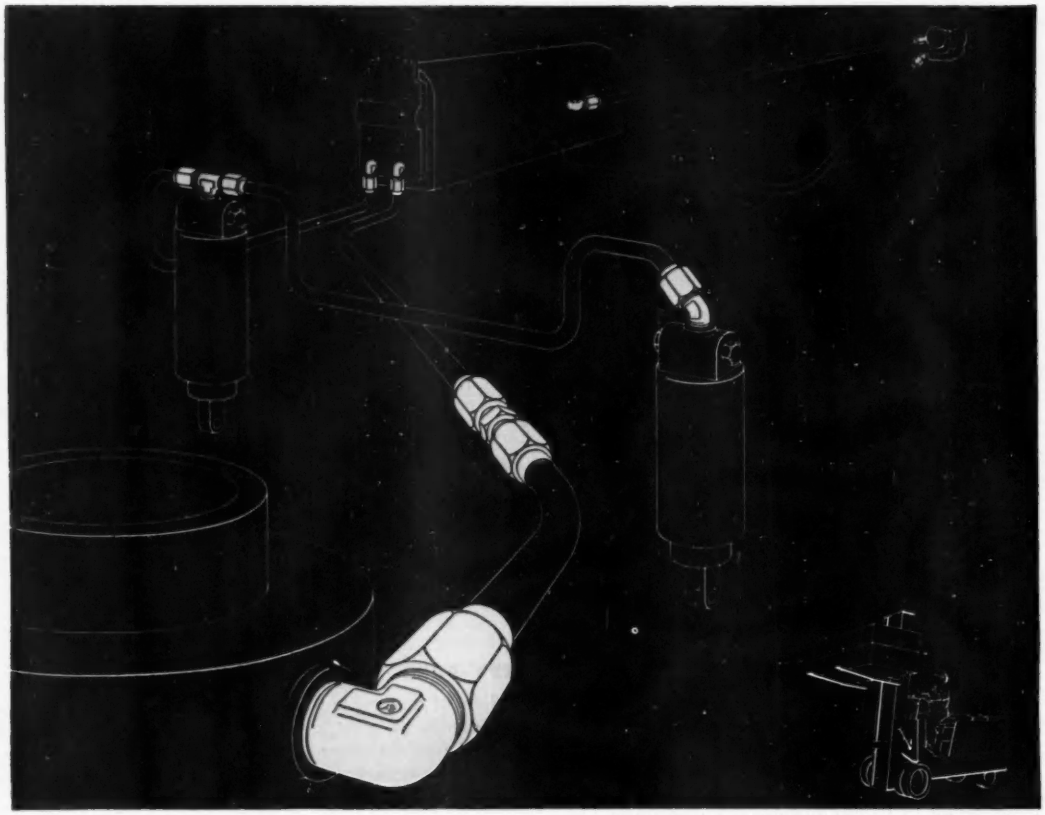
Here at Aluminum Alloys you find all the required facilities to turn out volume production of aluminum castings in any size from an ounce to 300 pounds. Over twenty years' experience casting aluminum exclusively is at your disposal to help solve a casting problem—to assume responsibility for your casting requirements from pattern through production.

- *Chemical and Physical Laboratory Control*
- *Heat Treat Facilities*
- *Air Force Certification*

Your inquiry will receive immediate attention. Phone, wire or write to **Aluminum Alloys Corp., Walton at West Warren, Detroit 10, Mich. TYler 8-5300.**

ALUMINUM ALLOYS Corporation

HOME OF RAY DAY PISTONS



(Illustration based on material furnished through courtesy of Towmotor Corp.)

Tube it up...Forget it!

WITH PARKER TRIPLE-LOK FITTINGS

This does it

Triple-lok . . . 3-piece flare fitting famous for its sleeve . . . the easiest way to install tubing systems. Made in brass, steel, stainless steel, aluminum alloy.

Precision Mark of

Leakproof Tube Fittings

Take hydraulic lift trucks, for example, where users cannot stand for failure due to leakage in the line connections. More and more manufacturers of materials handling equipment are using PARKER Triple-lok Fittings to ensure safer, more efficient and longer, trouble-free operation.

PARKER Triple-lok Fittings—as specified by the S.A.E. Hydraulic Tube Fitting Standards and J.I.C. Hydraulic Standards—are designed and precision made to be leakproof under even the severest conditions of vibration—elevated temperatures—high pressures—and repeated assembly . . . and to hold leakproof beyond tube bursting pressures. You will find that PARKER Triple-lok Fittings have been adopted as standard for all kinds of equipment where down time due to leakage is too costly to be tolerated.

So tube it up and forget it . . . with Triple-lok Fittings. Ask your PARKER Distributor, or write us direct for PARKER Tube Fitting Catalog 4300. The PARKER Appliance Company, 17325 Euclid Avenue, Cleveland 12, Ohio.

Parker

TUBE FITTINGS • VALVES • O-RINGS

Plants in Cleveland • Los Angeles • Eaton, Ohio • Berea, Ky.

Parker

INDUSTRIAL TUBE FITTING

STOCKS CARRIED BY

AKRON, O.	B. W. Rogers Co. 850 So. High St. (9)
BALTIMORE, Md.	Carey Machinery & Supply Co. 3501 Brehms Lane (3) Whitehead Metal Products Co. 4300 E. Monument St. (5)
BEAUMONT, Tex.	Standard Brass & Mfg. Co. 705 Milam St.
BOSTON, Mass.	A. E. Borden Co., Inc. 176 Brookline Ave. (15)
BUFFALO, N. Y.	Whitehead Metal Products Co. 2128 Elmwood Ave. (7)
CAMBRIDGE, Mass.	Whitehead Metal Products Co. 281 Albany St. (39)
CEDAR RAPIDS, Ia.	Globe Machinery & Supply Co. 309 8th Ave., S.E.
CHICAGO, Ill.	Wallace Tube Co. 1300 Diversey Parkway (14)
CINCINNATI, O.	Williams & Co. 3231 Fredonia Ave. (29)
CLEVELAND, O.	W. M. Pattison Supply Co. 777 Rockwell Ave. (14) B. W. Rogers Co. 1900 Euclid Ave. (15) Williams & Co. 3700 Perkins Ave. (14)
COLUMBUS, O.	Williams & Co. 851 Williams Ave. (8)
DALLAS, Tex.	Metal Goods Corp. 6211 Cedar Springs Rd. (9)
DAVENPORT, Ia.	Globe Machinery & Supply Co. 410 East Second St.
DAYTON, O.	J. N. Fauver Co. 1534 Keystone Ave. (10)
DENVER, Colo.	Metal Goods Corp. 2425 Walnut St.
DES MOINES, Ia.	Globe Machinery & Supply Co. East First & Court Ave. (6)
DETROIT, Mich.	J. N. Fauver Co. 49 West Hancock St. (1)
HARRISON, N. J.	Whitehead Metal Products Co. 1000 South Fourth Ave.
HOUSTON, Tex.	Metal Goods Corp. 711 Milby St. (3) Standard Brass & Mfg. Co. 2018 Franklin St. (1)
INDIANAPOLIS, Ind.	F. H. Langsenkamp Co. 229 E. South St.
KANSAS CITY, Mo.	Metal Goods Corp. 1300 Burlington Ave. (16)
KNOXVILLE, Tenn.	Leinart Engineering Co. 412 E. 5th Ave.
LOS ANGELES, Cal.	Haskel Engineering & Sup. Co. 721 W. Broadway, Glendale (4) Metropolitan Supply Co. 353 East 2nd St. (12)
MEMPHIS, Tenn.	J. E. Dilworth Co. 730 South Third St.
MILWAUKEE, Wis.	Morman Belting & Supply Co. 522 W. State St. (3) Wallace Companies of Wisconsin, Inc. 838 So. 6th St. (4)
MINNEAPOLIS, Minn.	Vincent Brass & Copper Co. 124 Twelfth Ave., South (15)
NEW ORLEANS, La.	Metal Goods Corp. 432 Julia St. (12)
NEWPORT NEWS, Va.	Noland Company 27th St. & Virginia Ave.
NEW YORK, N. Y.	Whitehead Metal Products Co. 303 West 10th St. (14)
NORFOLK, Va.	R. W. Hudgins & Son 3 Commerce St. (10)
PHILADELPHIA, Pa.	Louis H. Hein Co. 15 West Lancaster Ave. Ardmore, Pa. Whitehead Metal Products Co. 1955 Hunting Park Ave. (40)
PITTSBURGH, Pa.	Williams & Co. 901 Pennsylvania Ave. (33)
PORTLAND, Ore.	Hydraulic Power Equipment Co. 2316 N. W. Savier St. (10)
ROANOKE, Va.	Noland Company 11 Salem Ave. (10)
SAN FRANCISCO, Cal.	General Machinery & Sup. Co. 1346 Folsom St. (3)
SEATTLE, Wash.	Eagle Metals Co. 4755 First Avenue South (4)
ST. LOUIS, Mo.	Metal Goods Corp. 5239 Brown Ave. (15)
SYRACUSE, N. Y.	Whitehead Metal Products Co. 207 West Taylor St. (4)
TOLEDO, O.	Williams & Co. 650 E. Woodruff Ave. (2)
TULSA, Okla.	Metal Goods Corp. 302 North Boston (3)
EXPORT	Mercator Corp. 438 Walnut St. Reading, Pa.
CANADA	Railway & Power Engineering Corp. Ltd. Montreal, Toronto

Directory of Manufacturers

(*Continued from page* 427)

U. S. OUTBOARD MOTORS

For details of their products see pages 290-291.

ATLAS Supply Co. (Atlas-Royal), Newark, N. J.

CHAMPION Motors Co., Minneapolis 13, Minn.

CHRIS-CRAFT Corp., Grand Rapids, Mich.

CORSAIR Outboard Motor Co., Minneapolis 13, Minn.

EVINRUDE Motors, Milwaukee 9, Wisc.

FIRESTONE Tire & Rubber Co., Akron 17, Ohio.

GALE Products Div. (Buccaneer), Outboard Marine & Mfg. Co., Galesburg, Ill.

GAMBLE-SKOGMO, Inc. (Hiawatha), Minneapolis, Minn.

B. F. GOODRICH (Sea Flyer), Akron, Ohio.

GOODYEAR Tire & Rubber Co. (Sea Bee), Akron, Ohio.

JOHNSON Motors, Waukegan, Ill.

The LAUSON Co., New Holstein, Wisc.

MARTIN Motors, Div. of National Pressure Cooker Co., Eau Claire, Wisc.

METAL PRODUCTS Corp. (Flambeau) Milwaukee 12, Wisc.

MONTGOMERY WARD (Sea King), Chicago, Ill.

SCOTT-ATWATER Mfg. Co., Minneapolis 13, Minn.

SEARS, ROEBUCK & Co. (Elgin), Chicago, Ill.

SPIEGEL, Inc. (Brooklure), Chicago, Ill.

WEST BEND Aluminum Co. (Elgin), West Bend, Wisc.

PUBLICATIONS

(*Continued from page* 416)

bulletin, DB85-960. The tester, used mainly to locate insulation faults and winding dissymmetries in various electrical apparatus, is completely described and both the principles and the methods of operation are presented. Detailed specifications of both models, the portable and the mobile, are given along with considerations on their respective versatilities of application; examples of various applications are presented in photos.

H-68 Battery Chargers

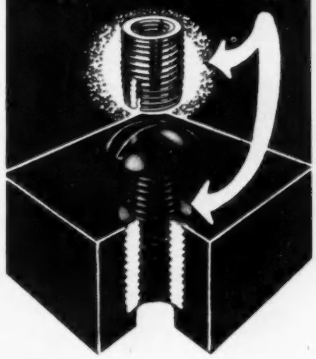
The Electric Products Co.—Bulletin 10-210 describes and illustrates the full line of Type S single-circuit motor-generator battery chargers for industrial batteries. A simplified listing makes easy the selection of the right charger for any popular size truck battery.

H-69 Continuous Sampling Monitor

General Electric Co. — A four-page bulletin on the continuous sampling monitor—a new device to simplify quality control—has been announced as available. The booklet, GEA-5738, contains photographs and diagrams of the equipment and explains the continuous sampling monitor's operation, construction and range.

TAP-LOK INSERTS

for original installations and stripped thread salvage



Tapped threads that strip easily are a headache to customers. Thread failure in light metals, plastics and similar materials can be prevented by the Tap-Lok Insert, a hard steel bushing that increases the shear area.

These Inserts are widely used for original installation because, being self-tapping, they save many manhours in assembly. They are quickly installed with a simple driving tool into a cored or drilled hole equal in size to a tap drill hole for the external thread of the Insert. They hold rigidly in position and do not become loosened when the male part of the fastening is removed.

The Inserts are also extensively used for the salvage of threads stripped in assembly. Many manufacturers are using them for this purpose to reduce the high cost of rejects.

Send for samples and descriptive folder.

•

Also manufacturers of Groov-Pins for positive locking press fit.

GROOV-PIN

CORPORATION

1119 Hendricks Causeway
Ridgefield, N. J.

EQUIPMENT PLANT • PRODUCTION

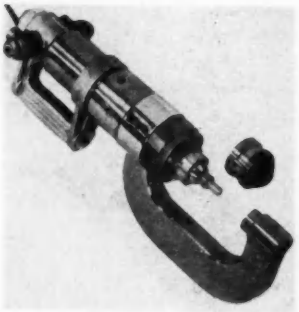
For additional information regarding any of these items, please use coupon on page 416

J-42—Portable Piercing Unit

Danly Machine Specialties, Inc., Chicago, Ill., has announced the availability of a complete line of portable hydraulic piercing units incorporating automatic hydraulic stripping action. Based on new hydraulic power cylinder designs, the unit is compact and is completely hydraulic in action.

One model weighs only 45 lb yet exerts a force of five tons at 2000 psi working pressure, according to the company. Maximum capacity is 12½ tons at 5000 psi working pressure.

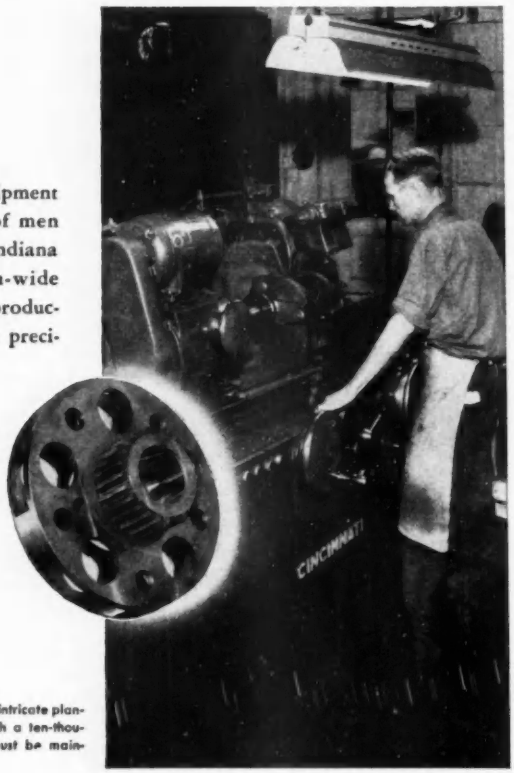
Danly portable hydraulic piercing units may be used for a variety of general metalworking operations — riveting, trimming, bending or extruding as well as piercing.



View of 45 lb five ton capacity Danly portable piercing unit, stripper shown removed.

REPUTATION!

The *best* in equipment and the *best* of men have earned Indiana Gear a nation-wide reputation for producing the *best* in precision gears.



*Shown above is an intricate planetary cage on which a ten-thousandth tolerance must be maintained.

INDIANA GEAR

INDIANA GEAR WORKS • INDIANAPOLIS 7, INDIANA

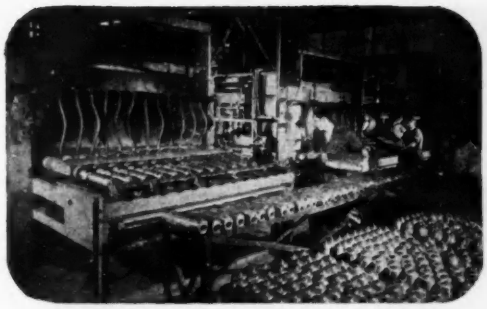
J-43—Plastic Material for Spray Booths

A vinyl-type paint spray booth coating material called Vincote, has been placed on the market by Detrex Corp., Detroit, Mich.

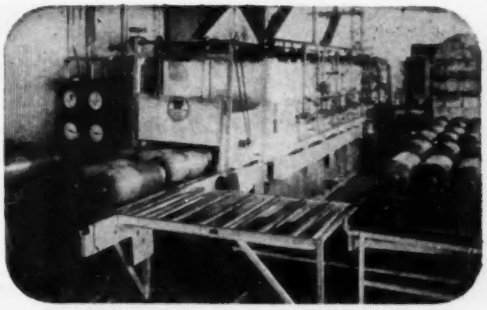
Detrex plastic spray booth material, Vincote.

Vincote was specially developed for use on the side walls of both water-wash and dry paint spray booths. The material possesses rapid drying properties and when sprayed on a booth wall forms a tough plastic film with

(*Turn to page* 432, *please*)



Shell Forgings 75 mm, 90 mm, 105 mm and other sizes are scale-free hardened, uniformly, automatically and continuously, in these and other EF gas fired installations.



Gas Cylinders Compressed gas cylinders or tanks are continuously normalized and annealed—scale-free, inside and out—in this and other EF gas fired furnaces.

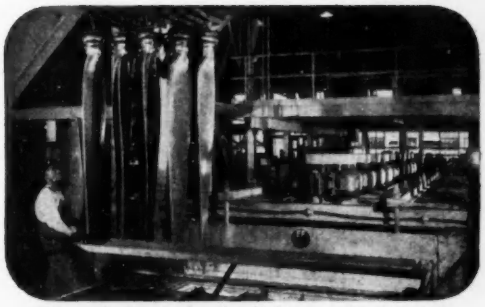
Typical EF Furnace Installations for Defense Production

We have the drawings and have already built these and many other defense production furnaces. Years of experience and complete manufacturing facilities enable us to give dependable service on furnaces for treating jet or propeller type engine parts; tank, automotive or aircraft parts; armor plate; metal powder products, ammunition components and other defense products.

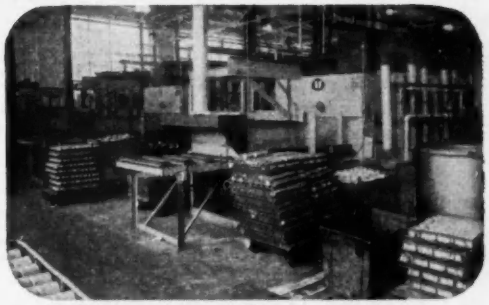
Ask for Bulletin 461-DP

THE ELECTRIC FURNACE CO. • SALEM, OHIO

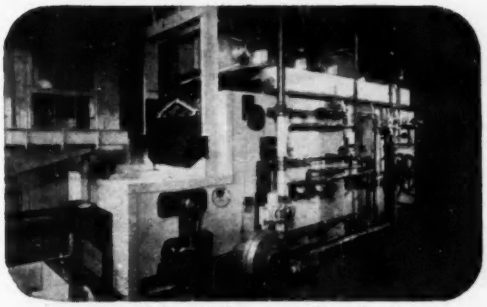
GAS, OIL OR ELECTRIC FURNACES, FOR ANY PRODUCT, PROCESS OR PRODUCTION



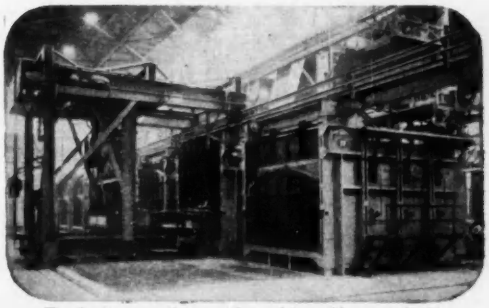
Aircraft Parts Propeller blades are uniformly heated and quenched in this EF continuous furnace. Types available for other propeller and jet type engine and aircraft parts.



Shell Cases A battery of EF gas fired radiant tube continuous special atmosphere, clean annealing and stress relieving furnaces. Other types available for steel or brass.



Cartridge Clips Machine gun cartridge clips, links and other products are scale-free hardened —continuously in EF belt furnaces. Capacities, 175 to 2000 lbs. per hr.



Tank Armor Heavy castings, plate, weldments and other products are heat treated in these EF furnaces. Gantry cranes simplify loading, unloading and quenching.

FORGINGS BY KROPP

Photo:
Harry Ferguson, Inc.

THIS FORGING
HELPS WHEEL FOOD
TO YOUR TABLE

It's a front axle section . . . one of two used with the front wheels of this modern farm tractor.

It is drop forged for accuracy . . . for strength . . . for longer life.

Product engineers also specify *forging* for steel parts to save space, reduce weight, increase safety, simplify welding, machining and assembly.

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WHERE *Better* FORGINGS ARE MADE

NEW PRODUCTION AND PLANT EQUIPMENT

For additional information please use coupon on page 416

(*Continued from page* 430)

high tensile strength. Vincote is said to be impervious to paint, enamel, lacquer, and water. When the paint overspray has built up to a point where its removal is indicated, the coating and all oversprayed paint is merely peeled off in large, easily removed sheets.

Vincote can be applied to booth walls with any standard spray equipment. A gallon of the material will cover from 275 to 400 sq ft depending upon the desired thickness.

J-44—Titanium Carbide Thread Ring Gage

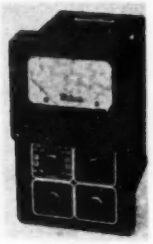
The Pipe Machinery Co., Cleveland, Ohio, is producing thread ring gages made with titanium. The material combination of titanium and carbide is known as Demark. A special wear check plug is provided with each ring. This special plug is a double end type with one end slightly larger to detect any possible wear.

Every gage produced by the company is a registered gage with serial number engraved on the metal. Its lead, angle, diameter and hardness is recorded and filed under that number.

J-45—Tachometers

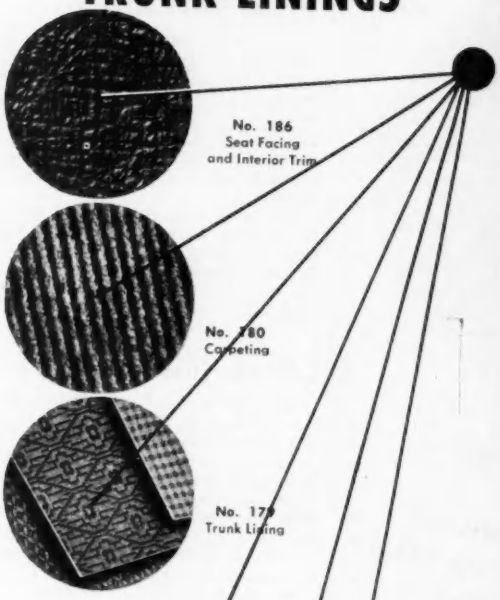
Extremely high accuracy, ¼ per cent of any speed being measured is guaranteed with Metron Instrument Co., Denver, Colo., tachometers now available. Accuracy is sustained by calibration adjustments, conveniently mounted on the front of the instrument.

Ten overlapping and adjoining ranges, instantly selected by rotary switch, provide more than a 10 to 1 spread in speed. The indicating meter has three scales selected for good readability of minor divisions in integral numbers. Speeds of 36 to 100,000 rpm are covered by three models.



Metron high accuracy tachometer.

Bur-Tex *Passenger Car* INTERIOR TRIM and TRUNK LININGS

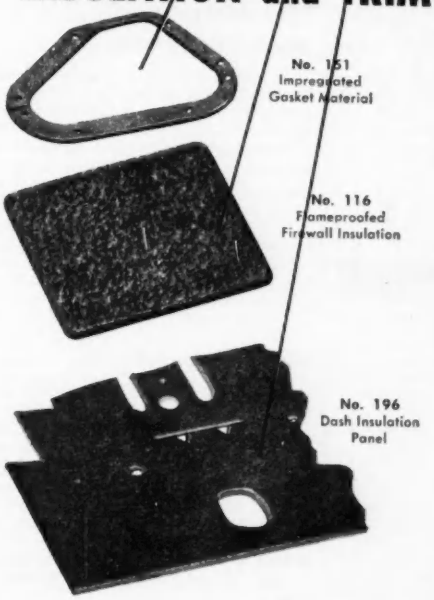


No. 186
Seat Facing
and Interior Trim

No. 180
Carpeting

No. 179
Trunk Lining

Bur-Tex *Truck and Bus* INSULATION and TRIM



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Firewall Insulation

No. 196
Dash Insulation
Panel

Bur-Tex
Automotive Felts

A complete line of inexpensive non-critical interior trim and trunk linings for the automotive trade. Plastic-coated, decorative, washable, long wearing and easily installed. Available in many combinations of texture and colors to suit your styling requirements.

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raise your sights on fastener supply!*

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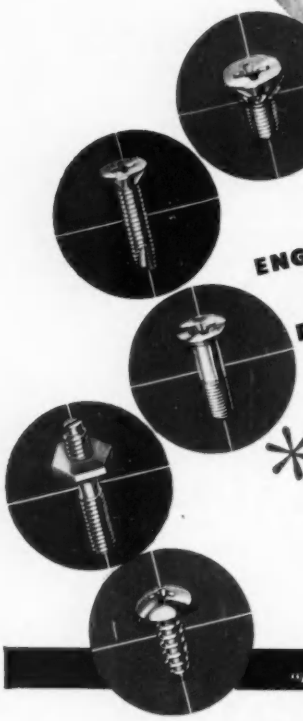
CONTINUOUS INVENTORY



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News of the Machinery Industries

ASTE President to Serve NPA

For the second successive year, the National Production Authority has drafted the president of the American Society of Tool Engineers to serve in Washington. J. J. Demuth, 1951-52 president of the society has been appointed Chief of the Tool, Die, Jig and Fixture Section, Metalworking Equipment Div.

This section, a vital one in tooling for aircraft, tanks, guns, etc., is particularly badly hit at present by a skilled manpower shortage not only in the manufacturing but also in the design field.

Carbide Tooling Advisors

The American Ordnance Association now has in operation a carbide cutting tool sub-committee of its shell committee. Representing all manufacturers of tungsten carbide cutting tools, the committee serves as advisers on carbide problems arising in shell manufacturing. All available technical data on the application of carbides has been assembled and is available to producers.

Assistance is also being provided to shell producers by the carbide committee on the organizing of training programs relating to the application of carbides.

1928 Material Applicable Today

The Bullard Co. is re-issuing a booklet which was originally published in 1928; it covers the Bullard Mult-Au-Matic method of production. According to the company, the material used in the book is just as applicable today to mass production as it was when originally released.

This 1928 booklet describes more than a machine; it describes a manufacturing method that is currently being used in most of manufacturing plants of the automotive industries.

New Design Method

Savings up to 50 per cent of the cost of an unmachined product, reduction of 30 per cent in weight and ability to provide greater rigidity in machine tools are claimed for assemblies designed and fabricated by the so-called Lincoln Weldesign system. The new design method, that takes advantage of the latest welding methods, is being offered to several machine tool builders by the Lincoln Electric Co., Cleveland, Ohio.

Defense Contract Awards

This latest list of defense prime contracts that have been awarded covers the period from Dec. 20, 1951 to Feb. 8. Items included in this list are for various types of automotive military equipment, including tanks, motorized gun carriages, trucks, warplanes, automotive components and spare parts, automotive maintenance equipment, etc.

Unit quantities and dollar amounts are given for contracts from $25,000 to $250,000. Contracts above $250,000 are indicated by "over $250,000," but their actual dollar amounts and unit quantities are not available.

—A—

Acme Aluminum Alloys, Inc., Dayton, Ohio
Components—$99,200
Aero Instrument Co., Cleveland, Ohio
Tube, pitot—3521—$41,547
Aeroquip Corp., Jackson, Mich.
Aircraft hardware—$32,153
Couplings—$81,411
Aircooled Motors, Inc., Syracuse, N. Y.
Maintenance parts—116433—$86,577
The Aircraft Fitting Co., Cleveland, Ohio
Aircraft hardware—$44,137
Aircraft Hardware Mfg. Co., Inc., New York, N. Y.
Aircraft hardware—$52,368
Aircraft hardware—$62,450
Aircraft hardware—$43,650
Airsearch Mfg. Co., Div. The Garrett Corp., Los Angeles, Calif.
Actuator parts—$110,494
Airsearch Mfg. Co., Los Angeles, Calif.
Compressor, gas turbine—$57,600
Actuator—353—$130,153
Allied Products Corp., Detroit, Mich.
Components—over $250,000
Allis-Chalmers Mfg. Co., Milwaukee 1, Wisconsin
Tractors, crawler type—over $250,000
American Bosch Corp., Springfield, Mass.
Engine nozzles—over $250,000
Tank & vehicle parts—17600—$94,916
American Locomotive Corp., Schenectady, N. Y.
Tank, spare parts—over $250,000
Ampco Metal, Inc., Milwaukee, Wis.
Propeller cones—15442—$76,596
Apex Machine & Tool Co., Patterson Blvd., Dayton, Ohio
Aircraft hardware—$76,675
Arcturus Mfg. Co., Venice, Calif.
Aircraft forgings—over $250,000
The Autocar Sales & Service Co., Ardmore, Pa.
Truck—3—$22,851
Auto-Lite Battery Co., Toledo, O.
Batteries—2258—$135,613
Batteries—1300—$48,903
AVCO Mfg. Corp., Lycoming Spencer Div., Williamsport, Pa.
Training—$47,558
Spares—$60,000

—B—

Bachman Wholesale Co., Rochester, N. Y.
Aircraft parts—$92,887
Baldwin-Lima-Hamilton Corp., Lima, Ohio
Repair parts—6—$14,961
Repair parts—18—$38,769
Baldwin-Lima Corp., Phila. 42, Pa.
Welded hull—exceeds $250,000
Facilities—over $250,000
Beech Aircraft Corp., Wichita, Kansas
Airplanes—over $250,000
Spares—over $250,000
Maintenance spares—over $250,000
Bell Aircraft Corp., Niagara Falls, N. Y.
Overrun on contract—$57,000
Spares—$50,000
Bendix Aviation Corp., Zenith Carburetor Div., Detroit, Mich.
Vehicle parts—27000—$179,820
Spare parts—208—$32,726
Bendix Aviation Corp., Scintilla Magneto Div., Sidney, N. Y.
Gasket—7850—$58,831
Maintenance parts—136420—$77,001
Maintenance parts—2700—$63,584
Engine analyzers—over $250,000
Bendix Aviation Corp., Bendix Products Div., South Bend, Ind.
Pivot shaft and ring assy.—over $250,000
Wheel & brake assy.—$29,748
Material—$46,015
Wheel assy.—$25,922
Spare parts—over $250,000
Spare parts—$49,825
Aircraft material—$153,186
Spare parts—over $250,000
Wheel assembly—over $250,000
Maintenance parts—over $250,000
Wheels and brake assys.—over $250,000
Wheel, brake assy.—over $250,000
Eclipse-Pioneer Div., Bendix Aviation Corp., Teterboro, N. J.
Turbo mechanical power system—$47,759
Maintenance parts—var.—$59,314
Maintenance parts—1959—$64,203
Airspeed assembly—$82,041
Transmitters—3000—$134,482
Spare parts—$99,371
Bennett Feragen, Inc., South Bend, Ind.
Stand engine test—10—$40,927
Biederman Corp., Cincinnati, O.
Spare parts—var.—$92,000
Blackhawk Foundry & Machine Co., Davenport, Iowa
Castings—$50,000
Blackstone Mfg. Co., Inc., Chicago, Ill.
Rate of climb indicators—$86,000
Blackstone Corp., Jamestown 6, N. Y.
Vehicle parts—over $250,000
Bill Brown, Inc., Detroit, Mich.
Vehicle parts—6900—$44,091
Boeing Airplane Co., Wichita, Kansas
Aircraft—over $250,000
Aircraft—over $250,000
Bohm Aluminum & Brass Co., Detroit, Mich.
Forgings—over $250,000
Borg-Warner Corp., Pesco Products Div., Bedford, Ohio
Maintenance parts—$105,328
Maintenance parts—$220,878
Pump assembly—360—$25,153
Maintenance parts—719—$29,275
Maintenance parts—$67,313
Maintenance parts—$46,656
Borg-Warner Corp., Ingersoll Products Div., Chicago 43, Ill.
Fuel tanks—over $250,000
Borg-Warner Service Parts Co., Chicago 4, Ill.
Spare parts—$78,285
Borg-Warner Corp., Mechanics Universal Joint, Rockford, Ill.
Tank and vehicle parts—400—$31,250
Bowen & McLaughlin, York, Pa.
Rebuild M4A3E4—over $250,000
Rebuild M4A3 tank—over $250,000
Bowen & McLaughlin, Phoenix, Ariz.
Spare parts, engines—over $250,000
Breeze Corp., Newark, N. J.
Aircraft hardware—over $250,000
Actuator—1561—$35,123
The Buda Co., Harvey, Ill.
Generator set—126—over $250,000
The Budd Company, Detroit, Mich.
Wheel—1650—$79,761

—C—

Caterpillar Tractor Co., Peoria, Ill.
Spareparts—various—$40,000
Spare parts—var.—$51,000
Spare parts—var.—$215,000
Cessna Aircraft Co., Wichita, Kansas
Airplanes, spares—over $250,000
Champion Spark Plug Co., Toledo, Ohio
Spark plugs—23—$30,618
Plug—95725—$117,742
Spark plugs—30—$51,005
Chase Aircraft Co., Inc., West Trenton, N. J.
Mobile Training Unit—1—$110,000
Chiksan Company, Brea, Calif.
Automotive spare parts—3970—$135,951
Chrysler Corp., Parts Div., Detroit 31, Mich.
Repair parts—601—$42,464
Clark Equipment Co., Battle Creek, Mich.
Engine assy.—20—$46,313
Cleveland Diesel Engine Co., Cleveland, Ohio
Spare parts—var.—$27,500
The Cleveland Pneumatic Tool Co., Cleveland 5, Ohio
Shock strut assy.—over $250,000
Columbus McKinnon Chain, Tonawanda, N. Y.
Tire chain—17200—$137,130
Colyear Motor Sales Co., Los Angeles, Calif.
Automotive, repair parts—19—$11,073
Consolidated Vultee Aircraft Corp., Fort Worth, Texas
T. O. Kits—$43,789
Balance computers—$148,743
Consolidated Vultee Aircraft Corp., San Diego, Calif.
Airplanes—over $250,000
Continental Aviation & Engineering Corp., Detroit, Mich.
Maintenance parts—var.—$201,274
Continental Motors Corp., Detroit 14, Mich.
Spare parts—var.—$82,839
Continental Motors Corp., Muskegon, Mich.
Repair parts—263—$27,622
The Cooper-Bessemer Corp., Mt. Vernon, Ohio
Repair parts—10406—$151,897
The Corbitt Co., Henderson, N. C.
Truck—5—$56,901
Cummins Engine Co., Inc., Columbus, Ind.
Repair parts—18505—$164,141
Repair parts—125—$24,744
Spare parts—$182,676
Curtiss-Wright Corp., Propeller Div., Caldwell, N. J.
Propeller assemblies—over $250,000
Spares—$148,500

—D—

Dana Corp., Toledo 1, Ohio
Vehicle parts—598—$44,725

(*Turn to page 436, please*)

Defense Contract Awards

(*Continued from page 435*)

Diamond T Motor Car Co., Chicago 23, Ill.
Vehicle parts—3380—$28,267
Diamond T. Truck Co., Los Angeles 21, Calif.
Repair parts—134—$15,287
Douglas Aircraft Co., Santa Monica, Calif.
Maintenance parts—432—$38,624
Maintenance parts—14950—$184,841
Spares—over $250,000
Maintenance parts—77—$46,877
Kits—over $250,000

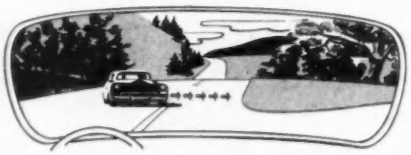
Dynamic Electronics, Inc., Glendale, L. I., N. Y.
Mounting—over $30,396

— E —

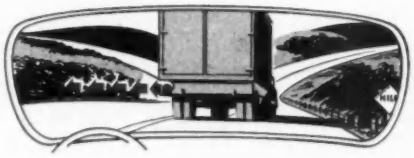
Eaton Mfg. Co., Spring Div., Detroit, Mich.
Tank and vehicle parts—7627—$35,478
H. B. Egan Mfg. Co., Muskogee, Okla.
Tires & tubes—over $250,000
Eicor, Inc., Chicago 7, Ill.
Inverters—over $250,000

3 TIMES SAFER

Tung-Sol Signal Flashers permit a three-way flashing hook-up for automobile or truck direction signals.

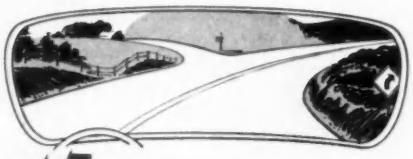


1 Warns the car approaching



2 Warns the car following

3 Instrument panel pilot light reassures the driver



More than 13,000,000 have been used. Most of them outlast the cars they're on.

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Elastic Stop Nut Corp., of America, Union, N. J.
Aircraft hardware—$34,745
Electrolux Corp., Old Greenwich, Conn.
Dynamotor—over $250,000
The Emerson Electric Mfg. Co., St. Louis 21, Mo.
Parts; aviation armament—2—$42,467
Erno Machine Co., Inc., White Plains, N. Y.
Maintenance parts—280—41,384
Evans Products Co., Plymouth, Mich.
Parts—over $250,000

— F —

Fabricon Products, Inc., River Rouge, Mich.
Generator—over $250,000
Fairbanks-Morse & Co., Chicago, Ill.
Diesel engine—1—$51,219
Fairbanks, Morse & Co., New York, N. Y.
Repair parts—2184—$34,477
Fairchild Aircraft, Fairchild Engine & Airplane Corp., Hagerstown, Md.
Misc. kits—over $250,000
Spares—over $250,000
Fairchild Engine & Airplane Corp., Fairchild Engine Div., Farmingdale, L. I., N. Y.
Power plants—over $250,000
Fargo Motor Corp., Washington, D. C.
Trucks, light—9—$18,747
Farrand Optical Co., Inc., New York, N. Y.
Spare parts—$39,848
Federal-Mogul Corp., Federal Mogul Service Div., Detroit 13, Mich.
Spare parts—$30,792
Federal Motor Truck Co., Detroit 9, Mich.
Truck—22—$108,939
Firestone Tire and Rubber Co., Akron, O.
Tires and tubes—44—$82,236
Fletcher Aviation Corp., Pasadena, Calif.
Tank assy.—over $250,000
Rudy Flick, Inc., Kansas City 8, Mo.
Trucks—3—$30,720
Food Machinery & Chemical Corp., Johnbean Div., Lansing, Mich.
Spare parts—$49,434
Ford Motor Co., Dearborn, Mich.
Repair parts—132—$19,168
Ford Motor Co., Ford Div., Dearborn, Mich.
Repair parts—214—$13,570
Ford Motor Co., Washington, D. C.
Trucks, light—19—$25,310
Trucks, light—56—$71,839
Truck, cab chassis—31—$65,052
The Four Wheel Drive Auto Co., Clintonville, Wisc.
Trucks—1—$12,077

— G —

General Electric Co., Phila., Pa.
Generator—4436—$136,021
Maintenance parts—var.—$198,490
General Electric Co., Schenectady, N. Y.
Spare parts—over $250,000
Spare parts—$57,844
Indicators—1205—$91,386
General Metals Corp., Adel Div., Burbank, Calif.
Valve parts—$52,000
General Metals Corp., Enterprise Div., San Francisco, Calif.
Enterprise engines—78—$28,190
General Motors Corp., New Departure, Bristol, Conn.
Ball bearings—30000—$29,400
General Motors Corp., Aeroproducts Div., Dayton, Ohio
Propeller assemblies—over $250,000
Sub assemblies & parts—$60,000
Propeller cones—7482—$44,517
Spare parts—$100,000

(*Turn to page 438, please*)

PERFECTIONIST...

A real mechanic ... a born mechanic. To you a job that is "all right" just isn't good enough. You demand perfect workmanship in materials and tools. And you are quick to recognize the work and products of other perfectionists.

Bonney wrenches are the work of such men. That is why mechanics call Bonney wrenches America's finest ... unmatched for lightness, strength, balance, and precision.

Bonney wrenches are the pride of the men who make them ... the pride of the men who use them.

BONNEY FORGE & TOOL WORKS
Allentown, Pennsylvania

BONNEY TOOLS

The perfectionists exemplified in the men who build and service the planes and engines that have made such great names as Consolidated, Douglas, Lockheed, Pratt & Whitney Aircraft, Wright, United, Pan American, TWA ... synonymous with safe travel.

T-BOLTS
ENGINEERS NOTEBOOK
T-BOLTS
T-BOLTS

POWER PLANTS

MARMAN

Clamps the Clifford to the Convair

The Clifford Oil Coolers on the Convair B-36-D are held in place by standard Marman Clamps and Straps. Bellows ducting at the inlet is held securely in place under varying conditions of vibration and stress by Marman Clamps with hi-safety T-Bolt latches. The unit is attached to the structure with two Marman Straps utilizing the same secure latch design.

These clamps and straps are part of a special-ized family of fastening and connecting devices pioneered and perfected by Marman and found today in every modern aircraft.

Save Time, Weight, Money with Marman

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MARMAN PRODUCTS CO., Inc.
940 W. FLORENCE AVE.
INGLEWOOD, CALIFORNIA

T-BOLTS
T-BOLTS

STANDARD CLAMPS FOR SPECIAL APPLICATIONS

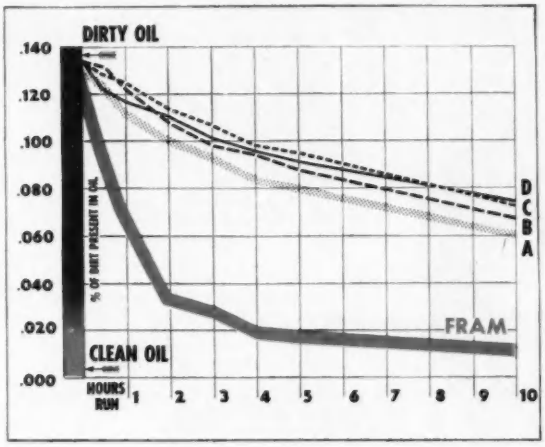
Defense Contracts

(*Continued from page 436*)

General Motors Corp., Delco Products Div., Dayton, Ohio
Repair parts—over $250,000
Spare parts—$91,998
Motor assy.—435—$29,471
General Motors Corp., Cadillac Motor Car Div., Detroit, Mich.
Power plant assemblies—over $250,000
GMC, Chevrolet Div., Detroit, Mich.
Trucks, light—164—$229,308
Trucks, light—23—
Forgings for shell (not furnished)
Facilities—(not furnished)
Detroit Diesel Engine Div., General Motors Corp., Detroit 28, Mich.
Repair parts—168—$25,650
Repair parts—118—$30,757
Repair parts—37189—$64,786
Generator set 12—$40,650
General Motors Corp., Ternstedt Div., Detroit, Mich.
Range finder—over $250,000
General Motors Corp., United Motors Service, General Motors Bldg., Detroit 2, Mich.
Parts—336—$94,784
Hardware—89200—$147,733
General Motors Corp., A. C. Spark Plug Div., Flint, Mich.
Cleaner, spark plug—94—$28,561
Repair parts—12144—$47,006
General Motors Corp., Grand Rapids, Mich.
Aft fuselage assemblies—over $250,000
General Motors Corp., Allison Div., Indianapolis 6, Ind.
Spares—over $250,000
Spare parts—over $250,000
Spare parts—over $250,000
Engines—over $250,000
General Motors Corp., Electro-Motive Div., La Grange, Ill.
Repair parts—85434—$248,400
Repair parts—10125—$32,480
General Motors Corp., Ternstedt Div., Plymouth, Mich.
Range finder—over $250,000
General Motors Corp., GMC Truck & Coach Div., Pontiac 11, Mich.
Tank—Automotive spare parts—12000—$114,360
Truck—3—$24,237
Truck, cab chassis—9—$22,893
Vehicle parts—over $250,000
Vehicle parts—over $250,000
General Tire & Rubber Co., Akron, Ohio
Jack, aircraft—over $250,000
Tire-thread—2500—$227,675
Gerity-Michigan Mfg. Co., Adrian, Mich.
Magnesium castings—$25,000
The B. F. Goodrich Co., Akron, Ohio
Deicer shoes—over $250,000
Goodyear Aircraft Corp., Akron, O.
Envelope; airship KX type—over $250,000
The Goodyear Tire & Rubber Co., Inc., Akron, Ohio
Wheel & brake assembly—$80,359
Wheel, assy., technical data—$154,389
Nose wheel—161—$31,833
Disk, brake assy.—1620—$61,192
Gordon Instruments, Los Angeles, Calif.
Mount assembly—$31,303
Graham Transmissions, Inc., Milwaukee Wisc.
Transmissions—405—$123,358
Greer Hydraulics, Inc., Brooklyn, N. Y.
Hydraulic test stand assy.—10—$57,580
Test stand—11—$67,932
Grinnell Screw Products Co., Detroit, Mich.

(*Turn to page 440, please*)

Here's PROOF that FRAM FILTERS BEST



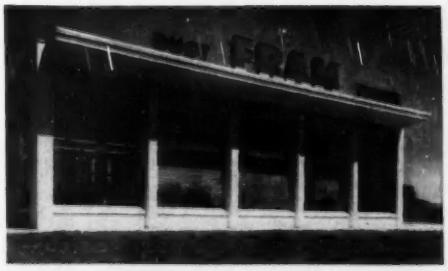
Controlled Laboratory tests show FRAM cartridges remove more contaminants faster than other popular brands

In a series of oil filtration laboratory tests, the Fram Filcron cartridge was tested against other popular cartridges of comparable size. Batch clean-up tests were performed using identical quantities of oil containing identical quantities of contaminants (.134% by weight under electric eye analysis). Tests were run for 10 hours, with the results graphed at the left. It is interesting to note that at the end of *5 hours*, the Fram Filcron had removed more than half again as much contaminant as other cartridges did at the end of *10 hours!*

You are invited to make full use of FRAM's facilities to solve your filtration problems

In Dexter, Michigan, Fram Corporation operates the world's first large Dust Tunnel. Here, all types of internal combustion powered equipment can be tested under any simulated dust condition—accurately measured and controlled! Vehicles from giant buses to small cars can be tested in hours instead of weeks. Dust conditions from city air to a blinding sand storm can be duplicated at will. These facilities are at your disposal . . . for the asking! If you'd like to use Fram's Dust Tunnel to solve your filtration problems, write:

FRAM CORPORATION, Providence 16, R. I.
In Canada: J. C. Adams Co., Ltd., Toronto, Ontario



Manufacturers of...

FRAM OIL & MOTOR CLEANERS ★ FRAM FILCRON REPLACEMENT CARTRIDGES ★ FRAM CEL-PAK REPLACEMENT CARTRIDGES FRAM FILTRONIC REPLACEMENT CARTRIDGES ★ FRAM CARBURETOR AIR FILTERS ★ FRAM GASOLINE FILTERS ★ FRAM CRANKCASE AIR FILTERS ★ FRAM POSITIVE CRANKCASE VENTILATORS ★ FRAM RADIATOR & WATER CLEANERS ★ FRAM FUEL OIL FILTERS ★ FRAM INDUSTRIAL OIL AND FUEL FILTERS ★ FRAM SEPARATOR-FILTER FOR IMMISCIBLE LIQUIDS ★ FRAM CUSTOM-DESIGNED FILTERS FOR SPECIALIZED APPLICATIONS.

Defense Contracts

(*Continued from page 438*)

Vehicle parts—71000—$35,500
Grumman Aircraft Engineering Corp., Bethpage, Long Island, N. Y.
Glass; bullet proof—307—$43,947

—H—

Hagan Corp., Pittsburgh, Pa.
Control system—over $250,000
Hammond Mfg. Corp., Pasadena, Calif.
Tank veh. parts—160—$29,904
Harley-Davidson Mtr. Co., Milwaukee, Wisc.
Vehicle parts—$37,037
Harnischfeger Corp., Milwaukee, Wis.
Repair parts, shovels—$15,290
Harnischfeger Corp., Wilwaukee 14, Wis.
Repair parts—32—$77,860
Harval Truck Equipment, Los Angeles, Calif.
Repair parts—63—$17,498
The Heil Co., Milwaukee, Wisc.
Repair parts—68—$17,281
Heppenstall Co., Pittsburgh, Pa.
Die blocks—over $250,000
Hewitt Restfoam Div., Buffalo, N. Y.
Tank veh. parts—450—$123,750
Highland Park Auto & Truck Supply, Los Angeles, Calif.
Repair parts—36—$27,132
Repair parts—23—$31,265
The Hobart Bros. Co., Troy, Ohio
Generator sets, spart parts—$54,464
Holley Carburetor Co., Detroit 4, Mich.
Carburetor parts—$73,265
Maintenance parts—var.—$216,927
Houdaille Hershey Corp., Buffalo, N. Y.
Tank and vehicle parts—796—$75,901
Hughes Aircraft Co., Hughes Tool Co., Culver City, Calif.
Parts—250—$85,552
Hughes-Keenan Corp., Delaware, Ohio
Trucks—31—$219,250

—I—

Ideal Corp., Brooklyn, N. Y.
Aircraft hardware—$222,000
International Fermont Machinery Co., Inc., Rampo, N. Y.
Generator set—over $250,000
International Harvester Co., Los Angeles, Calif.
Repair parts F/tractors, power units, engines—470—$47,653
International Harvester Co., Melrose Park, Ill.
Tractors, crawler type—over $250,000
International Harvester Co., Washington, D. C.
Trucks—4—$18,695
Tractors—3—$34,058
Truck—over $250,000

—J—

Keene S. Jackson, Glendale, Calif.
Parts and equipment—$75,115
Jack & Heintz, Inc., Cleveland, O.
Generator—10460—$246,006
Spare parts—$31,596
Starters—over $250,000
Control box & generator—over $250,000
Generator—3460—$89,475
Starters—147—$40,695

—K—

Kaiser Mfg. Corp., Willow Run, Mich.
Airplanes—over $250,000
Kollsman Instrument Corp., Elmhurst, N. Y.
Altimeters and spare parts—1942—$173,-059
Kendallville Foundry, Inc., Midwestern Magnesium Div., Kendallville, Ind.
Castings—$65,000
Kindred Aviation Corp., Burbank, Calif.
Parts and equipment—$51,816
Kohler Co., Kohler, Wisc.
Generator set, portable—1585—over $250,000
Kollsman Instrument Corp., Elmhurst, N. Y.
Machmeters—over $250,000
Indicators—over $250,000
Koppers Co., Inc., Metal Products Div., Baltimore 3, Md.
Piston rings—255—$91,555

—L—

Lear, Inc., Grand Rapids, Mich.
Spare parts—$29,878
Controls—over $250,000
LeRoi Company, Milwaukee, Wis.
Spare parts—var.—$27,000
Spare parts—var.—$37,000
R. G. LeTourbeau, Inc., Peoria, Ill.
Kit for tractor—264—$76,846
Tractor—over $250,000
Scraper—30—$164,750
Spare parts—var.—$52,000

(*Turn to page 442, please*)

IF YOU HAVE DEFENSE CONTRACTS—

—WE CAN FURNISH YOUR SHIPPING CONTAINERS

You can be sure that SUPERSTRONG boxes and crates will fully comply with Government packaging specifications. Our facilities and equipment, our nearly a century of experience, our control and supply of raw materials, are your assurance of obtaining containers manufactured in accordance with the following Government specifications —

SHIPPING SUPERSTRONG CONTAINERS

...OUND BOXES and CRATES	JAN-P-106A Wood Export
...DEN BOXES and CRATES	MIL-B-107A Wirebound Export
...UGATED FIBRE BOXES	NN-B-621b Wood Domestic
...BEVERAGE CASES	NN-B-631c Wirebound Domestic
...H TRAYS . . . PALLETS	NN-B-601b Cleated Plywood-Domestic
	JAN-P-105A Cleated Plywood-Export
	LLL-B-631c Fibre Corrugated-Domestic
	NN-B-591a Fiberboard, Wood, Cleated
	MIL-B-2427 Wood Ammunition Boxes
	JAN-P-132 Wood Crates-Unsheathed
	MIL-C-11133 Wirebound Crates-Domestic (QMC)

RATHBORNE, HAIR AND RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS
EASTERN SALES OFFICE • 121 NO. BROAD STREET, PHILADELPHIA 7, PA.

JOIN THE LEADERS

The preference of experienced design engineers for Velvetouch, is based on performance records that prove Velvetouch lasts longer. And it lasts longer . . . because it's all-metal! Leading equipment manufacturers everywhere specify genuine Velvetouch clutch plates, facings and brake linings wherever operating conditions are extremly severe. They know they can depend on Velvetouch! It lasts longer . . . won't rot or glaze like asbestos . . . delivers uniform friction action. And with Velvetouch, due to its powdered metals make-up, a friction surface can be developed to meet your individual needs. Our engineers will gladly consult with you. Either contact our nearest branch . . . or write The S. K. Wellman Co., 1374 E. 51 St., Cleveland 3, Ohio

Velvetouch

THE S. K. WELLMAN CO. WAREHOUSING CENTERS

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CHICAGO—1500 South Western Ave., Chicago 8, Illinois

CLEVELAND—1392 East 51st St., Cleveland 3, Ohio

DALLAS—3407 Main Street, Dallas 1, Texas

LOS ANGELES—1110 S. Hope Street, Los Angeles 15, Calif.

PHILADELPHIA—1545 West Belfield Ave., Philadelphia, Pa.

PORTLAND—636 N. W. 16th Ave., Portland 9, Oregon

SAN FRANCISCO—424 Bryant Street, San Francisco 7, Calif.

TORONTO, ONTARIO The S. K. Wellman Co. of Canada, Ltd., 2839 Dufferin St.

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EXPORT DEPARTMENT—6 So. Michigan Ave. Chicago 3, Ill., U. S. A.

WASHINGTON OFFICE—1101 Vermont Ave. N. W. Washington 5, D. C.

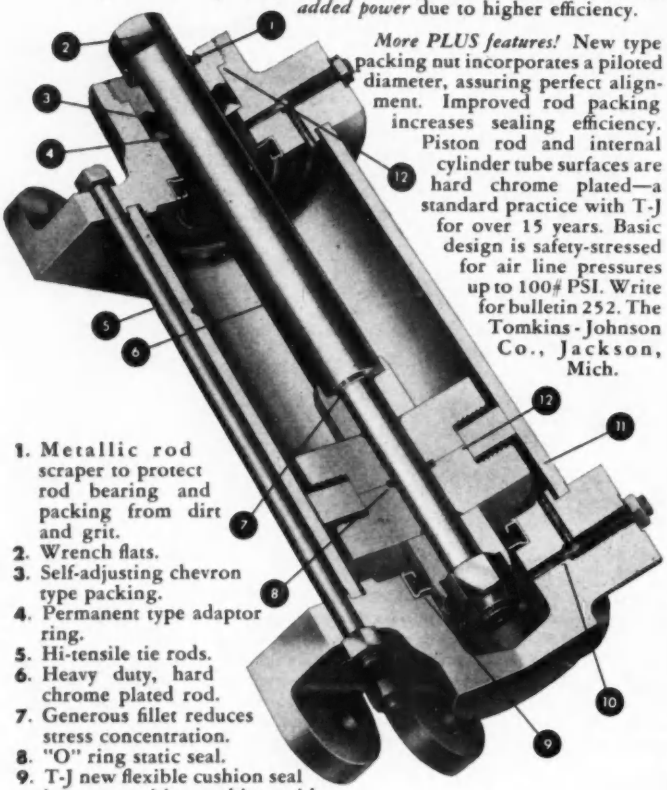
New Flexible Sealing...

T-J AIR CYLINDER

Designed with revolutionary application of

Super-Cushion

It's *sealed with pressure*—a revolutionary T-J application of flexible sealing that insures positive cushion action combined with automatic valving action for fast return stroke . . . eliminates binding and sticking . . . operates with *low friction, minimum wear,* and *added power* due to higher efficiency.



More PLUS features! New type packing nut incorporates a piloted diameter, assuring perfect alignment. Improved rod packing increases sealing efficiency. Piston rod and internal cylinder tube surfaces are hard chrome plated—a standard practice with T-J for over 15 years. Basic design is safety-stressed for air line pressures up to 100# PSI. Write for bulletin 252. The Tomkins-Johnson Co., Jackson, Mich.

1. Metallic rod scraper to protect rod bearing and packing from dirt and grit.
2. Wrench flats.
3. Self-adjusting chevron type packing.
4. Permanent type adaptor ring.
5. Hi-tensile tie rods.
6. Heavy duty, hard chrome plated rod.
7. Generous fillet reduces stress concentration.
8. "O" ring static seal.
9. T-J new flexible cushion seal insures positive cushion with automatic valve action for fast return stroke. (Patent applied for)
10. Fine cushion adjustment.
11. Heavy wall precision honed hard chrome plate.
12. Controlled packing compression with metal to metal contact.

See us in Booth #1927
ASTE Industrial Exposition
Chicago . . . March 17-21

36 YEARS' EXPERIENCE T-J

TOMKINS-JOHNSON

RIVITORS · AIR AND HYDRAULIC CYLINDERS · CUTTERS · CLINCHORS

Defense Contracts

(*Continued from page* 440)

The Lewis Engineering Co., Naugatuck, Conn.
Indicator, temperature—$27,100
Indicators—1500—$59,675
Indicator—887—$37,950
Lincoln Industries, Inc., Marion, Va.
Radomes—$121,246
Link Aviation, Inc., Binghamton, N. Y.
Trainers—3—$66,793
The Liquidometer Corp., Long Island City, N. Y.
Instruments and component parts—$104,-983
Indicator—1239—$56,163
Lockheed Aircraft Corp., Burbank, Calif.
Engineering changes and spares—over $250,000
Spare parts—$100,000
Kits—403—$36,000
Kits, assy. & sub-assys.—over $250,000
Spares—over $250,000
Lord Mfg. Co., Erie, Pa.
Mount assy.—575—$100,918
Damper assy.—$99,343

—M—

Mack Mfg. Corp., New York, N. Y.
Carrier, R. axle differential assy.—50—$26,342
Mack Mfg. Corp., Washington, D. C.
Chassis, truck—over $250,000
Macwhyte Co., Kenosha, Wisc.
Aircraft hardware—$117,000
The Glenn L. Martin Co., Baltimore, Md.
Spare parts—20—$37,629
Parts, maintenance—17—$80,170
Strut assy.—265—$46,225
Marquette Metal Product Co., Cleveland, Ohio
Windshield wiper assy.—$63,010
Masco, Inc., Cleveland, Ohio
Generator—950—$97,375
The Master Electric Co., Dayton, Ohio
Generators—over $250,000
Miehle Print Press & Mfg. Co., Star-Kimble Motor Div., Bloomfield, N. J.
Motor generators—$31,655
Al Monroe Service, Inc., Los Angeles, Calif.
Spare parts—70—$14,216
Motor Wheel Corp., Lansing 3, Mich.
Tank veh. parts—2100—$116,676
Mutual Truck Parts Co., Inc., Chicago 16, Ill.
Motor vehicles—655—$131,000

—N—

Norberg Mfg. Co., Milwaukee 7, Wisc.
Repair parts—16696—$105,306
Repair parts—2424—$78,894
North American Aviation, Inc., Columbus, Ohio
Kits—$87,273
North American Aviation, Inc., Los Angeles, Calif.
Aircraft—over $2500
Aircraft—over $2500
North American Aviation, Inc., Port Columbus, O.
Assemblies—$26,037
Assemblies—over $250,000
Spares—$110,000
Northfield Stamping Co., Melvindale, Mich.
Vehicle parts—800—$64,800

(*Turn to page* 445, *please*)

Always give more than you promise

JOHN M. STUDEBAKER

There were five Studebaker brothers: Henry, Clem, John, Peter and Jacob. They were a combination of American stock that included the talents of blacksmith, financier, farmer, merchant and pioneer.

From the lengthened shadow of their blacksmith and wagon-building shop, started in South Bend, Indiana, on February 16, 1852, has grown Studebaker . . . the world's largest independent manufacturer of motor cars.

Although the product, personalities, factories and customers have changed through the years since 1852, there is visible continuity of the policy that has been the mainspring of Studebaker's century of progress:
"Always give a little more than you promise."

THE NEW 1952

Studebaker

. . . a tribute to 100 years of giving more than promised

Jacob Studebaker

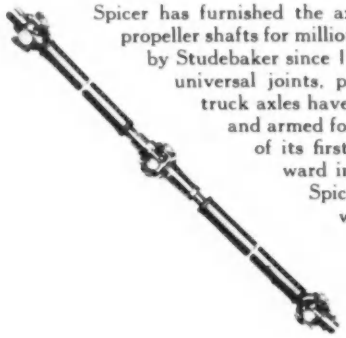
John M. Studebaker

Clem Studebaker

Henry Studebaker

Peter Studebaker

Since 1905, Spicer Equipment has helped Studebaker build its world-wide reputation for Quality Motor Vehicles



Spicer has furnished the axles, universal joints and propeller shafts for millions of the passenger cars made by Studebaker since 1905. And for many years Spicer universal joints, propeller shafts and light delivery truck axles have been used in Studebaker commercial and armed forces vehicles. From the broad foundation of its first century of success, Studebaker looks forward into another century of growth and expansion. Spicer joins the entire automotive industry in best wishes for continued progress.

SPICER MANUFACTURING

Division of Dana Corporation • TOLEDO 1, OHIO

48 YEARS OF Spicer SERVICE

TRANSMISSIONS • UNIVERSAL JOINTS • BROWN-LIPE AND AUBURN CLUTCHES • FORGINGS • PASSENGER CAR AXLES • STAMPINGS • SPICER "BROWN-LIPE" GEAR BOXES • PARISH FRAMES • TORQUE CONVERTERS • POWER TAKE-OFFS • POWER TAKE-OFF JOINTS • RAIL CAR DRIVES • RAILWAY GENERATOR DRIVES

Defense Contracts

(*Continued from page* 442)

Northrop Aircraft, Inc., Hawthorne, Calif.
Spare parts—over $250,000
Northwestern Auto Parts Co., Minneapolis 11, Minn.
Tank & vehicle parts—1515—$73,780

—O—

Oakland Truck Sales, Inc., River Rouge, Mich.
Vehicle parts—587—$40,209
D. W. Onan & Sons, Minneapolis, Minn.
Generator sets—4—over $250,000
Operating & Maint. Specialties, Rock Hill, S. C.
Aircraft hardware—$28,500
Oshkosh Motor Truck, Inc., Oshkosh, Wisc.
Truck—2—$20,072
Ozone Metal Products Corp., Ozone Park, L. I., N. Y.
Cylinder assemblies and struts—$99,500

—P—

Pacific Airmotive Corp., Burbank, Calif.
F-51H Aircraft—$200,000
Regulator assy.—17—$32,944
Packard Motor Car Co., Detroit, Mich.
Engines—over $250,000
Pagliuso Engr. Co., Glendale 4, Calif.
Aircraft hardware—50000—$48,000
Paragon Gear Works, Taunton, Mass.
Tank & veh. parts—413—$120,769
Perfection Stove Co., Cleveland, O.
Kit, heater, power plant for truck—over $200,000
Phaostron Co., South Pasadena, Calif.
Generator relays—1359—$64,318

—R—

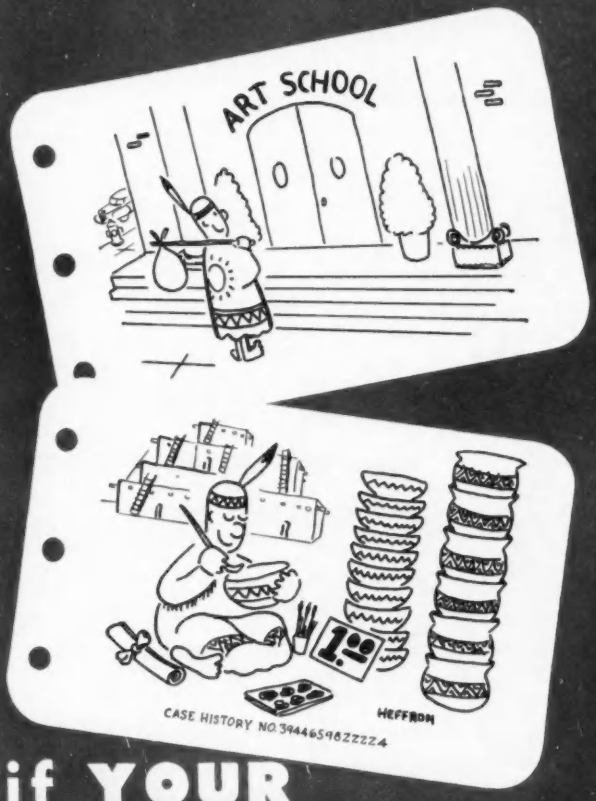
Reading Battery Co., Reading, Pa.
Batteries—3550—$126,699
Republic Aviation Corp., Farmingdale, L. I., New York
Spares—over $250,000
H. Z. Rosenberg & Co., Buffalo, N. Y.
Parts & equipment—$122,876
Royal Heaters, Inc., Alhambra, Cal.
Fuel tanks—over $250,000
Russell, Burdsall & Ward, Bolt & Nut Co., Port Chester, N. Y.
Hardware—$26,178
Ryan Aeronautical Co., San Diego, Calif.
Flight test program—$163,283

—S—

St. Pierre Chain Corp., Worcester, Mass.
Tire chain—over $250,000
Schnacke Mfg. Corp., Evansville 7, Ind.
Cylinder sleeves—5700—$28,956
Schultz Bros., Inc., Saginaw, Mich.
Vehicle parts—60—$37,996
Slinger Foundry Co., Inc., Slinger, Wisc.
Cylinder sleeves—6010—$27,599
Solar Aircraft Co., San Diego, Calif.
Spare parts—over $250,000
Son-Chief Electrics, Inc., Winsted, Conn.
Pitot tube—2277—$30,284
Sterling Engine Co., Buffalo 13, N. Y.
Generator sets—9—over $250,000
Stewart-Warner Corp., Indianapolis, Ind.
Winterization kits—over $250,000
Winterization kits—over $250,000
The Studebaker Corp., South Bend, Ind.
Engines—over $250,000
Syncro Machine Co., Perth Amboy, N. J.
Helicopter clutches—$81,000

(*Turn to page* 446, *please*)

INGENUITY
can solve any problem



if YOUR PROBLEM involves the higher production of threaded parts

HY-PRO TAPS can help you to a solution

HY-PRO TOOL CO.
NEW BEDFORD, MASS., U.S.A.
Subsidiary of Continental Screw Co.

Order from your distributor or call the HY-PRO SALES ENGINEER

Defense Contracts

(*Continued from page 445*)

—T—

Tesarski Mfg. Co., Los Angeles 22, Cal.
Tank and vehicle parts—6450—$30,445
Thompson Products, Inc., Cleveland, O.
Maintenance parts—$100,767
Titeflex, Inc., Newark, N. J.
Maintenance parts—17435—$149,306
Miscellaneous spares—over $250,000

—U—

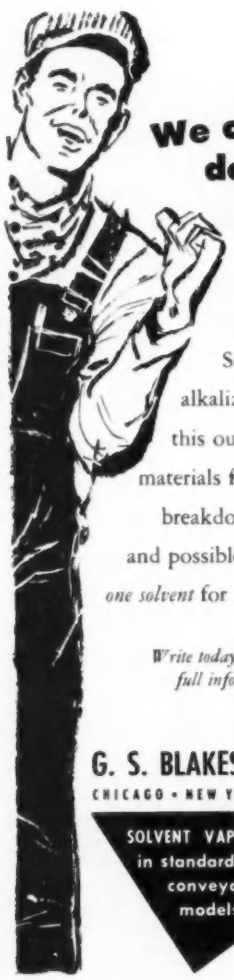
The Union Diesel Engine Co., Oakland, Calif.
Repair parts—7804—$163,599
United Aircraft Corp., Bridgeport, Conn.
Sikorsky Aircraft Div., Bridgeport, Conn.
Spares—over $250,000
Spares—$218,455
United Aircraft Corp., Hamilton Standard Div., East Hartford 8, Conn.
Propeller spare parts—2642—$61,127
Provisioning parts—over $250,000
Propeller parts—44769—$44,890
Propeller parts—10761—$38,775
Propeller parts—10779—$37,225
Propellers—36—$129,000
United Aircraft Corp., Pratt & Whitney Aircraft Div., East Hartford 8, Conn.
Engine spare parts—66518—$36,512
Spare parts—2694000—$61,127
Spare parts—17289—$46,437
Spare parts—over $250,000
Engine build-up stand—over $250,000
Spare parts—41456—$45,725
Engine parts—189976—$63,573
Engine parts—over $250,000
Spare parts—56151—$33,931
Engine parts—7232—over $250,000
Cutaway—over $250,000
United States Chain Co., Chicago 16, Ill.
Tire chain—18948—$88,108
United States Motor Corp., Oshkosh, Wisc.
Generator set—over $250,000
U. S. Motor Truck Sales, Detroit, Mich.
Vehicle parts—565—$27,035

—V—

Vickers, Inc., Detroit, Mich.
Pump assy.—250—$56,290
Reo Washington Co., Washington, D. C.
Trucks—14—$72,167
Truck, cab, chassis—2—$10,777

—W—

Waukesha Motor Co., Waukesha, Wisc.
Plant assy.—auxiliary power—over $250,000
Western Gear Works, Belmont, Calif.
Gear final drive—800—$125,840
Westinghouse Electric Corp., Dayton, Ohio
Alternators, regulators—over $250,000
Generators—$47,756
Generators—over $250,000
Westinghouse Electric Corp., Phila. 4, Pa.
Repair parts—8152—$49,897
Westinghouse Electric Corp., Aviation Gas Turbine Div., Phila. 13, Pa.
Special overhaul—499—$38,798
Material to support WECO starters—15384—$40,353
Main. parts—573330—over $250,000
The White Motor Co., Cleveland, O.
Gear box assembly—over $250,000
Spare parts—over $250,000
Willys-Overland M s., Toledo 1, O.
Trucks, light—15—$42,328
Manuals for vehicles—$84,559
Repair parts—172—$38,796
Aluminum forgings—$96,000



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Highest Stabilized Degreasing Solvent—BLACOSOLV is stabilized not alkalized—Years of research have produced this outstanding solvent. Contains no alkaline materials for the purpose of neutralizing acid *after* breakdown. Stabilizers prevent breakdown and possible acid formation. Blacosolv is the *one solvent* for *all metals* or *combination* of metals.

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SOLVENT VAPOR DEGREASERS in standard or special conveyor models

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Canadian Flight Equipment to Manufacture in Ontario

According to recent reports, a new aircraft equipment industry will be established at Cobourg, Ont. The new company, which has set up an assembly plant and will eventually manufacture at the Cobourg site, is Canadian Flight Equipment, Ltd. Perhaps the best known of the products to be turned out at Cobourg is the Martin-Baker ejector seat. The firm has reportedly acquired North American Aviation Corp. manufacturing rights to all of the products made by Martin-Baker Aircraft Co., Ltd.

GM Employee Suggestions Reach New Record Level

General Motors Corp. recently announced that its employee suggestion plan chalked up a record 140,830 suggestions during 1951. Total awards of $1,516,533 were paid to employees for the 30,758 suggestions adopted. A new high of 65,868 employees participated in the plan.

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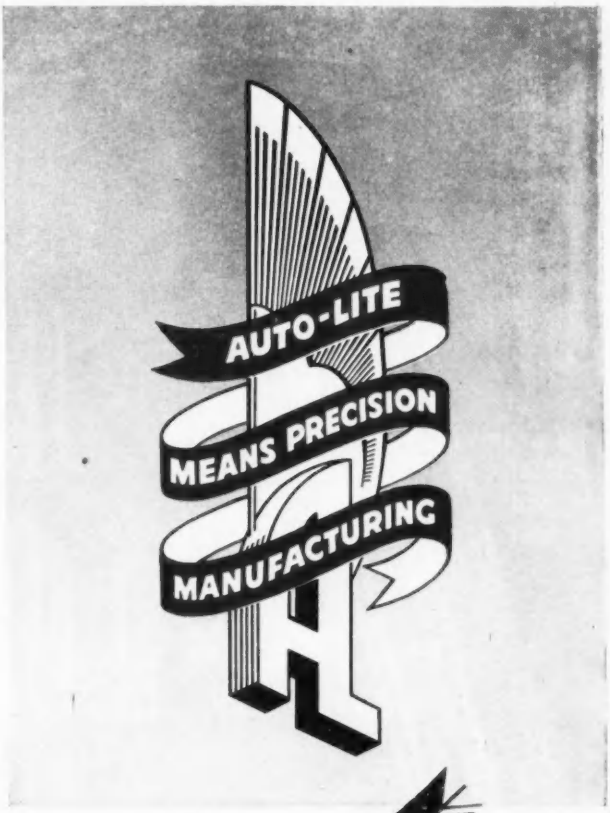

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CALENDAR

OF COMING SHOWS AND MEETINGS

ASTE Industrial Exposition, Chicago, Ill. .....Mar. 17-21

Geneva Automobile & Truck Show, Geneva, Switzerland .....Mar. 20-30

Chicago International Trade Fair, Chicago, Ill. .....Mar. 22—Apr. 6

First Annual American Power Conference, Chicago, Ill. .....Mar. 26-28

American Society of Lubrication Engineers, Seventh Annual Meeting and Lubrication Show, Cleveland, Ohio .....Apr. 7, 8, 9

Mobilgas Economy Run.....Apr. 14-17

American Zinc Institute, 34th Annual Meeting, Hotel Statler, St. Louis, Mo. .....Apr. 21-22

SAE Aeronautic Meeting, New York, N. Y. .....Apr. 21-24

Turin Automobile Show, Turin, Italy .....Apr. 23-May 4

Fifth Annual Hot Rod and Motor Sports Show, Los Angeles, Calif. Apr. 24-27

Metal Powder Show and Eighth Annual Meeting, Chicago, Ill...Apr. 29-30

International Foundry Congress and Show, Atlantic City, N. J. ...May 1-7

API Div. of Refining, San Francisco, Calif. .....May 12-15

Society of Experimental Stress Analysis, Spring Meeting, Indianapolis, Ind. .....May 14-16

American Helicopter Society, Eighth Annual Forum, Hotel Washington, Washington, D. C.....May 15-16

American Society for Quality Control (sixth annual meeting), Syracuse, N. Y. .....May 22-24

Memorial Day 500 Mile Race, Indianapolis, Ind. .....May 30

SAE Summer Meeting, Atlantic City, N. J. .....June 1-6

Third Annual Conference on Industrial Research, Columbia Univ., New York, N. Y. .....June 9-13

National Truck, Trailer and Equipment Show, Los Angeles, Calif. June 12-15

Industrial Finishing Exposition, Chicago, Ill. .....June 16-20

American Society for Testing Materials (annual meeting), New York City .....June 23-27

SAE West Coast Meeting, San Francisco, Calif. .....Aug. 11-13

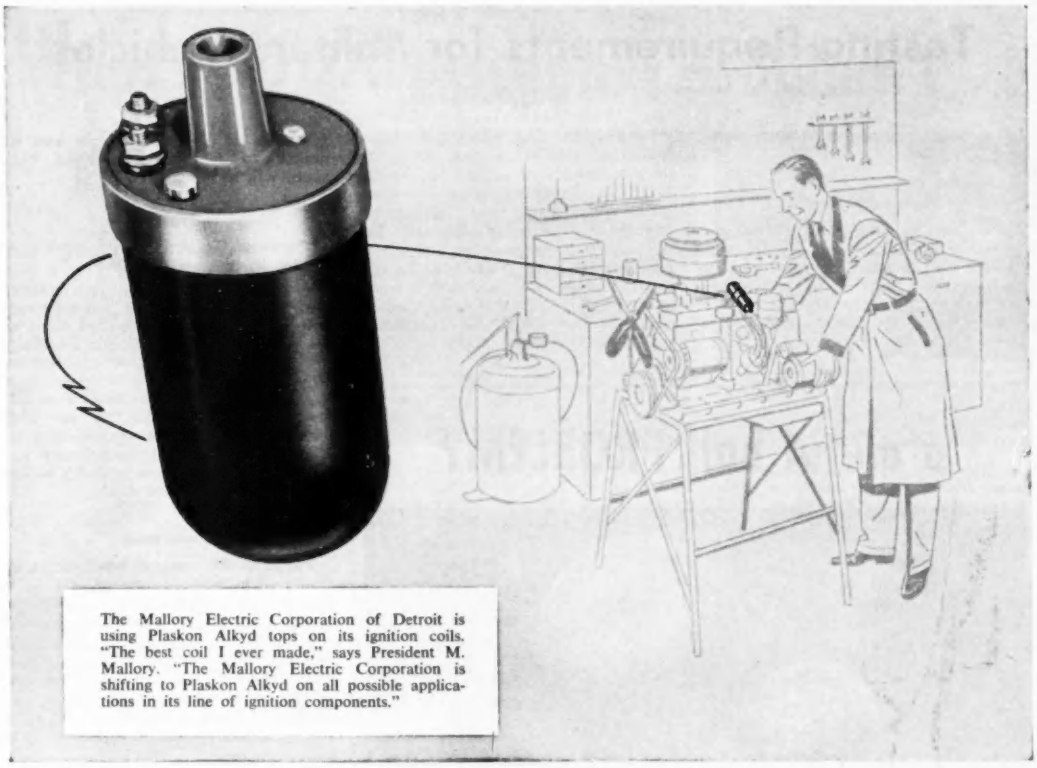
American Standards Asso., Third National Standardization Conference, Chicago, Ill. .....Sept. 8-10

Instrument Society of America (sixth annual meeting), Cleveland, Ohio .....Sept. 8-12

SAE Tractor Meeting, Milwaukee, Wis. .....Sept. 9-11

Paris Automobile Show, Paris, France Oct. 2-12

37th International Motor Exhibition, London, England .....Oct. 15-22



The Mallory Electric Corporation of Detroit is using Plaskon Alkyd tops on its ignition coils. "The best coil I ever made," says President M. Mallory. "The Mallory Electric Corporation is shifting to Plaskon Alkyd on all possible applications in its line of ignition components."

Troubled by High-Voltage Arcing?

Look into Plaskon Alkyd for High Arc Resistance

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Plaskon Mobile Demonstration Trailer

Fully equipped shop with molding presses and complete test equipment. Plaskon technicians will make on-the-spot comparisons of parts molded from Plaskon Alkyd with your present parts.

You can prevent tracking in high-voltage ignition parts if you specify Plaskon Alkyd. It will contain those high voltages and give ignition parts a longer service life. This thoroughly tested material has a resistance to arcing of *180 seconds, A.S.T.M.*

You can design for greater compactness since electrical parts can be made smaller due to Plaskon Alkyd's extra margin of safety against tracking. And it can be molded faster and at lower pressures than conventional thermosetting plastics.

Let Plaskon Alkyd help solve your high-compression ignition problems with its combination of higher arc resistance, greater dielectric strength, resistivity and excellent dimensional stability.

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Manufacturers of Molding Compounds, Resin Glues, Coating Resins

In Canada:

Canadian Industries, Ltd. • Montreal, P.Q.

Testing Requirements for Military Vehicles

(*Continued from page* 185)

be weighed, measured, photographed and compared.

Highway Operation

Purpose: To compare the overall performance of the test vehicle with the control vehicle while operating on the highway both individually and in convoy, and to determine whether the test vehicle meets the military characteristics for highway operation.

Method: The test vehicles will be operated and compared with the control vehicles under various road and weather conditions, separately and in convoy, with no load, rated load, 100 per cent overload and various trailed loads. Fuel and lubricant consumption, roadability, and suitability in traffic will be compared. The test vehicle will be operated on highway trips of several hours at sustained high speeds with rated load and with and without towed loads. Performance of the test vehicle and its ability to maintain sustained high speed will be noted.

Braking

Purpose: To determine adequacy of brakes on the test vehicle.

Method: Determine stopping distance with rated load, 100 per cent overload, and with and without trailed loads at 20, 30 and 40 mph. Determine adequacy of test vehicle brakes while operating on 60 per cent slope with rated load. Attempt to fade service brakes of test vehicle operating with 100 per cent overload and heaviest trailed load on long steep grades. Inspect brake linings of test vehicle periodically to determine condition and wear.

Acceleration

Purpose: To compare acceleration of test vehicle with control vehicle as a measure of relative vehicle agility.

Method: Vehicles will be compared on a 1500 yd course with rated load and with 100 per cent overload. Vehicles will start from a halt and operate at maximum speed. Time will be recorded at 100 yd intervals. A trailed accelerometer is used to record all this data on a tape.

Gradeability

Purpose: To compare the gradeability of the test vehicle with that of the control vehicle, and to determine if the test vehicle meets the military characteristics for gradeability.

Method: Vehicles will be operated on a 5 per cent paved road slope one mile long and a 10 per cent gravel slope ½ mile long. Runs will be made with no load, rated load, 100 per cent overload, and rated load with rated towed load. Time to negotiate course and top speed attained will be recorded. With reduced tire pressure (20 psi), vehicles will attempt to negotiate a 350 ft dirt slope of 60 per cent maximum gradient from a standing start with 50 per cent of rated load and full rated load.

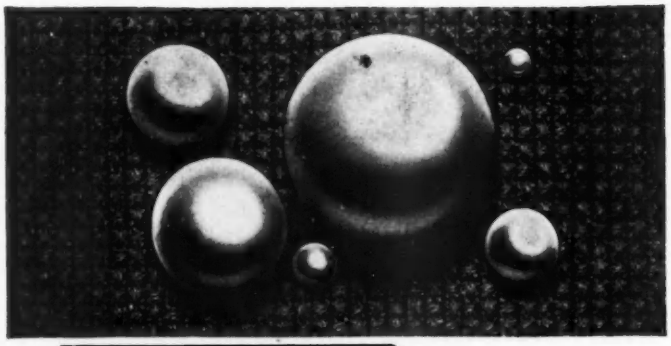
Mobility in Mud

Purpose: To compare the mobility of the test vehicle with that of the control vehicle when operating over muddy terrain.

Method: The vehicle will operate over an extremely muddy cross-country course consisting of slippery slopes and deep mud holes. Relative mobility of the vehicles will be compared. The effect of mud on the various components of the vehicles, particularly on the life and operation of the brakes will be noted.

(*Turn to page* 452, *please*)

a metal ball PROBLEM?



Let STROM Work It Out For You

Whether it is a precision ball bearing or one of the other many ball applications in industry, your problem will not be entirely new. Strom has been in on many ball problems and knows the importance of the right ball for the job.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity, and dependable physical quality, there's not a better ball made.

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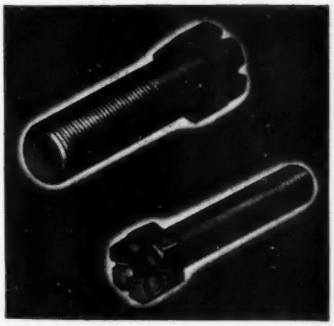
Largest Independent and Exclusive Metal Ball Manufacturer

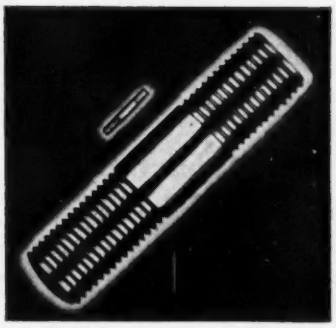
What's *YOUR* fastening problem?

NAT SAYS:

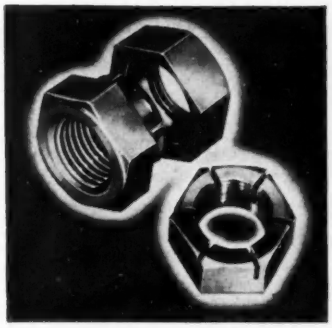
We make many special types of fasteners to solve special problems. Perhaps these will fit *your* particular need.



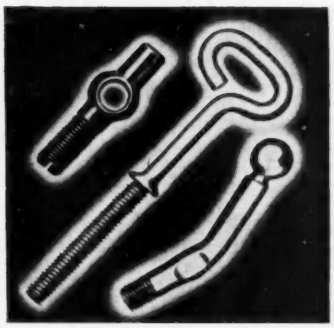
Vibration Problem? . . . The "National" Place Bolt's spring-action head, tightened against a rigid seat, locks the bolt against loosening caused by vibration, insures against impact or shock failure. Now obtainable in carbon as well as alloy steels, providing substantial cost savings.



Positive Locking-Sealing? . . . LOK-THRED bolts, studs and screws actually *become tighter in service*, under vibration. Eliminate need for selective fits and blind tapping —yet provide effective and positive sealing. Available in any size stud, bolt or screw.



Stress, Shear, Shock? . . . "National" Lock Nuts, in a variety of types, are designed to fit every fastening need . . . for rugged, heavy equipment where severe stress, shock or shear must be overcome . . . for fastening lightweight materials at minimum cost.



Special Fastener Needs? . . . Our engineers can help you find a solution for practically any special fastening problem . . . requiring an unusual type of bolt, nut, screw, pin or headed or threaded part. And we can produce it for you economically.

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Technical Service Data Sheet
Subject: RUST PROOFING WITH PERMADINE®

INTRODUCTION:

Ferrous metal parts that have been Permadized in a zinc phosphate chemical solution and then "sealed" with a rust-preventive oil such as "Granoleum" are effectively protected from rust-damage. In addition, if the surface is accidentally chipped or scratched, rusting is confined to the exposed area.

Rust proof coatings find many practical applications. During World Wars I and II most small arms were rust proofed by phosphate coating and impregnated with chromic acid and a rust preventive oil, or cutback petrolatum. This not only provided excellent corrosion resistance but also yielded a dull black non-reflecting surface. Rust proof finishes are now used widely on hardware, firearms, cartridge clips, metallic belt links, miscellaneous forgings and castings, tools, unpainted replacement machine parts, and many other similar items such as bolts, nuts, and washers.

THE PERMADIZING PROCESS:

For the most effective rust proofing of large or small work in large or small production, "Permadine" is used in tanks in an immersion process, with the bath heated to 190°-210°F., coating time 20 to 30 minutes. The coated parts are then rinsed in clean water, and then in a controlled dilute acidulated solution. After drying, a suitable corrosion-resistant oil such as "Granoleum" is applied.

Operations can be carried out with the work in crates, or hung from hooks, utilizing an overhead rail and hoists. For large volume production, automatic equipment can be used to mechanize the line. Small parts can be treated in tumbling barrels.

"PERMADINE" MEETS SERVICE SPECIFICATIONS:

The protective "Permadine" finish meets U.S.A. 57-0-2C; Type II, Class B, and equivalent requirements of:

MIL-C-16232,
Type II
U.S.A. 51-70-1,
Finish 22.02, Class B
AN-F-20
Navy Aeronautical M-364
JAN-L-548

"PERMADINE" DATA CHART

Type of coating	Zinc phosphate
Object of coating	Rust and corrosion prevention
Typical products treated	Nuts, bolts, screws, hardware items, tools, guns, cartridge clips, fire control instruments, metallic belt links, steel aircraft parts, certain steel projectiles and many other components
Scale of production	Large or small volume; large or small work
Method of application	Dip Barrel tumbling, racked or basketed work
Equipment notes	Immersion tanks of suitable capacity. Cleaning and rinsing stages can be of mild steel. Coating stage can be of heavy mild steel or stainless steel.
Chemicals required	"Permadine" No. 1
Pre-cleaning methods	Any common degreasing method can be used. Alkali cleaning ("Ridosol"); Acid cleaning ("Deoxidine"); Emulsion-alkali cleaning ("Ridosol", "Ridoline"); vapor degreasing, solvent wiping, etc., are examples. Acid cleaning may need to follow other cleaning methods if rust or scale is present.
Bath Temperature	190° - 210°F.
Coating time	20 - 30 minutes
Coating weight range Mgs./Sq. Ft.	1000 - 4000
Technical Service Data Sheets	No. 7-20-1-2 T. M. No. 5

CHEMICALS ACP PROCESSES

WRITE FOR FURTHER INFORMATION ON "PERMADINE" AND YOUR OWN METAL PROTECTION PROBLEMS

CHEMICALS ACP PROCESSES

Testing Military Vehicles

(*Continued from page* 450)

Prime Mover for Towed Loads

Purpose: To determine the suitability of the test vehicle as a prime mover for towed loads.

Method: In conjunction with other tests evaluate the performance of the test vehicle with appropriate towed loads, using rated load cross country and 100 per cent overload on highways.

Cross Country Operation

Purpose: To determine the suitability of the test vehicle for cross-country operation, and to compare the agility of the test vehicle with that of the control vehicle.

Method: The vehicle will be operated for 1000 miles over open, rolling, and hilly terrain that varies from deep mud to rough, hard, dusty operation (mud mobility test mileage will be included). Particular note will be made of fuel and oil consumption, parts mortality, and driver fatigue. After completion of the comparative 1000 miles the test vehicle will operate an additional 1000 miles. During the foregoing operations, test and control vehicles will be clocked at maximum speed over a measured mile of the cross-country course and their times will be compared.

Winch

Purpose: To determine if the winch of the test vehicle is capable of extricating the vehicle when it is immobilized in muddy or rough terrain.

Method: The test vehicle will be immobilized in deep mud, mud holes, ditches and at the foot of steep embankment and the winch utilized to extricate the vehicle.

Air Transportability

Purpose: To determine the suitability of the test vehicle for use in airborne operations.

Method: The test vehicle will be inspected with reference to over-all dimensions, tiedown provisions, and obstructions to loading in appropriate aircraft. Test vehicle will be loaded into an appropriate aircraft and secured for air transport. The vehicle will be delivered by parachute from an aircraft.

Cold Room

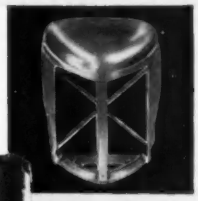
Purpose: To determine if the test vehicle will meet the military characteristics for cold starting.

Method: The engine of the test vehicle will be prepared for arctic operation using REO 72 engine oil and arctic fuel, grade C (Reid vapor pressure 12.2 psi); the battery will be fully charged. After cold soaking the test

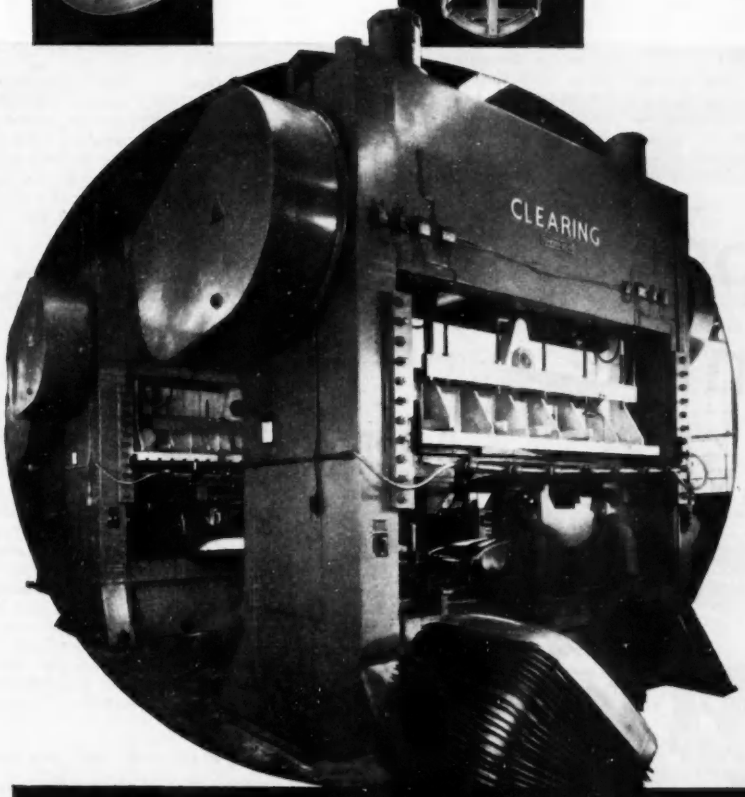
(*Turn to page* 454, *please*)

From expensive casting to low cost stamping.

Heavy truck fabrication.



Truck fender.



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Getting the best from presses is an operator's stock in trade in the contract stamping business. Competition is keen, and successful old timers, like Briskin Mfg. Co., Chicago, didn't get that way without a great deal of production skill.

Briskin put their money on Clearing presses because Clearings gave them the maximum quality, economy, on-schedule production and minimum waste that are the watchwords of Briskin production. Die regrinds are few and far between and maintenance costs are lower, too.

Where competition is tough and economical production means a winning hand, Clearing presses are dependable assets. Looking at results is a good way to choose *your* press equipment too! For production, your best choice is Clearing.

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HAMILTON DIVISION, HAMILTON, OHIO

CLEARING PRESSES

THE WAY TO EFFICIENT MASS PRODUCTION

Testing Military Vehicles

(*Continued from page* 452)

vehicle for 48 hr at the prescribed temperature (−25 F or −40 F), attempt will be made to start the engine.

Side-Slope Stability

Purpose: To compare the tipping angle of the test vehicle with that of the control vehicle, and to compare the side-slope stability of the test vehicle with that of the control vehicle.

Method: Vehicles with no load and rated load will be tipped and controlled by cables until the tipping angle has been determined. The vehicles with rated load will be operated on side-slopes to determine comparative stability. Traction, side slippage, spring action, and ease of control will be noted.

Obstacle Crossing

Purpose: To compare the obstacle crossing ability of the test vehicle with that of the control vehicle.

Method: The vehicles will be operated across ditches of varying depth and width and over verticle obstacles of varying height until immobilized.

Fordability

Purpose: To determine the maximum fording depth of the test vehicle without installation of special fording equipment.

Method: The test vehicle will be operated, without special fording equipment, in a hard bottom stream having water depths varying from 18 to 48 in. Upon completion of fording operations the vehicle will be thoroughly examined to determine the effects of water on the various components and the fuel and lubricating systems.

Stowage and Loading

Purpose: To determine the most satisfactory stowage for On Vehicle Materiel (OVM) equipment. To determine the limitations of the vehicle bed in carrying various types of military cargo. To determine the suitability of the vehicle for transporting fully equipped personnel, particularly crews of weapons towed by or carried in the vehicle.

Method: During all tests observations will be made on the optimum location of OVM equipment for accessibility and safety during operation. Test loadings will be made of typical military cargoes such as ammunition boxes and gasoline cans, and the capacity of the vehicle determined for each type of load. Loadings will be made with fully equipped personnel. Safety and comfort of personnel will be noted and capacity of vehicle determined.

Ease of Operation and Crew Comfort

Purpose: To compare the ease of operation and crew comfort of the test vehicle with that of the control vehicle.

Method: Observations of comparative ease of operation and crew comfort will be made during the course of all test operations. Test personnel will be questioned concerning ease of gear shifting and steering, accessibility of controls, visibility, comfort, and general opinions as to the relative merit of the vehicles. The noise level, temperature, and weather resistance of the cabs will be noted. Ability of the driver to operate the vehicle while wearing arctic clothing will be checked.

Durability and Reliability

Purpose: To determine the durability and mechanical reliability of the test vehicle.

Method: Upon completion of all the foregoing specific tests, the test vehicle will continue operation until a total of 20,000 miles has been accumulated of which approximately 14,000

(*Turn to page* 456, *please*)

copper
can be
saved in radiators

Less copper is needed for smaller radiators of sealed cooling systems. To save it for National Defense and yet sustain the modern standard for cooling performance, specify DOLE THERMOSTATS. They have been designed to safeguard the cooling efficiency of the smaller radiator.

DOLE THERMOSTATS allow the sealed cooling system to operate at peak efficiency; and the influence of pump pressures and cap pressures is fully offset. The engine operates under the constant protection of a most effective automatic temperature control.

Your ultimate buyer is assured of the quality and performance he expects under your name. Your nation's copper hungry defense industry benefits by the share you are able to relinquish.

with
DOLE
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to regulate
cooling

Control with DOLE

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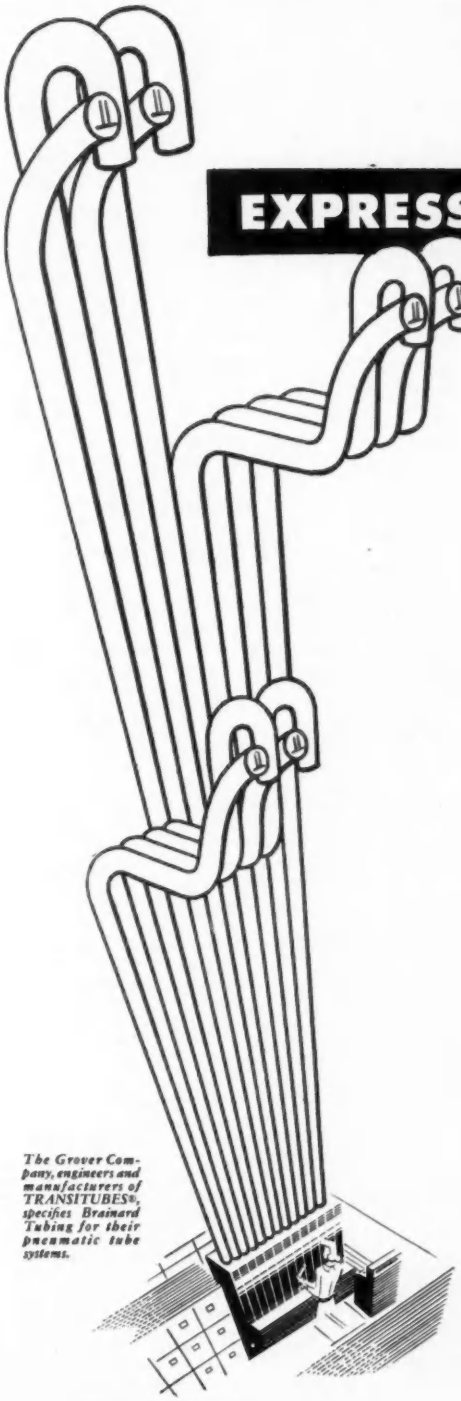
another job for Brainard TUBING



The Grover Company, engineers and manufacturers of TRANSITUBES®, specifies Brainard Tubing for their pneumatic tube systems.

EXPRESSWAY FOR HOT MAIL

● Precision is important in pneumatic tube systems . . . a big reason why Brainard Electric-welded Tubing is so widely used for this application.

Brainard Tubing is produced to close tolerances, with a smooth inside finish. In straight or bent sections, the bore is a smooth expressway for the carrier cylinders.

Strength is uniform. Sections can be joined by a variety of methods, simplifying the work of both designer and fabricator. And . . . electric-welded tubing is far more economical than other types.

Brainard's integrated production facilities assure quality control throughout manufacture . . . from ore to finished tubing. Depend on Brainard service for *your* needs.

EASY TO FABRICATE

Brainard tubing is a uniform product made to close tolerances. Has good machining qualities and finish can be supplied as specified. Easily fabricated—can be beaded, expanded, swaged, spun, flanged, upset, grooved, fluted, flattened, tapered, and otherwise formed. Supplied straight or fabricated, sizes ½" to 4" O.D.; .025 to .180 gage.

Fast delivery on certain sizes. For further information or catalog, write Brainard Steel Division, Dept. W-3, Griswold Street, Warren, Ohio.

Brainard
STEEL DIVISION
SHARON STEEL CORPORATION

WARREN, OHIO

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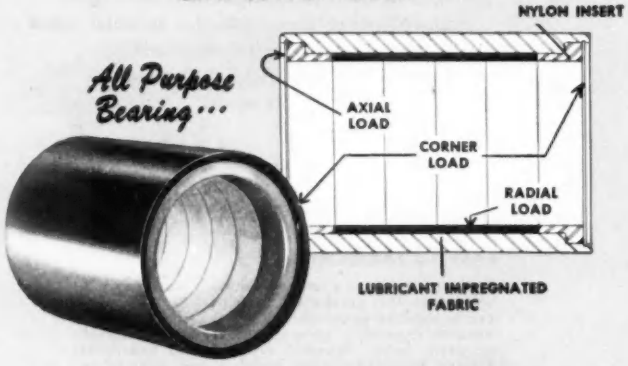
. . . for combined axial, radial and corner loads



By combining the inherent characteristics of the efficient O & S lubricant impregnated bearing material and the recently developed nylon bearing material we have found the answer to the problem of simultaneously combined radial, axial and corner loading.

If you have a problem that involves all three—write for Bulletin 133.

NeverOil SINCE 1919

O & S BEARING CO.

303 SOUTH LIVERNOIS • DETROIT 17, MICHIGAN

Testing Military Vehicles

(*Continued from page* 454)

miles will be on highways, 4000 miles on secondary roads and 2000 miles cross country.

Maintenance and Fuel Requirements

Purpose: To determine the maintenance requirements and fuel and lubricant consumption of the test vehicle.

Method: During all test operations, a record will be kept of the maintenance time required, parts failures, and fuel and lubricant consumption.

The foregoing is an abstract of a paper presented before the 1952 SAE Annual Meeting in Detroit, Mich.

ASTE Industrial Exposition

(*Continued from page* 409)

electronic machine drives and controls are featured.

One of the unique arrangements for the exposition is the allocation of the second floor of the South Hall at the International Amphitheatre for exhibits of inspection and quality control equipment. This area has been designated Precision Control Hall and contains displays by more than 40 suppliers of this type of equipment. One large mass production company has an exhibit showing how it utilizes precision control methods in order to demonstrate to others how this may be done in production.

Technical papers covering a wide variety of subjects are scheduled for morning, afternoon and evening sessions. A panel discussion is an extra feature provided for each afternoon session in addition to the technical papers. Six experts comprise each panel. For March 17 (Monday) the panel subject is "Turning and Forming Tolerances." On succeeding afternoons the discussions will be on drilling, metal stamping dies and operations, finish grinding, and machine drives and controls.

YOUR JOB IS CLEAR —GET IN THE SCRAP to keep steel coming

NON-FERROUS SCRAP is needed too!

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Although *Allen ⬡ Screw* is not in the dictionary, engineers and production men the world over say *Allen ⬡ Screws* to refer to *precision socket screws.* That's how it is with names — probably there's a name that comes to your mind at once as an outstanding *Industrial Distributor* in your locality. He is almost certain to be the one who handles *Allen ⬡ Screw* products. His experience and extensive stock of Allen ⬡ products are the ideal combination to smooth out any problems you encounter in precision fastenings.

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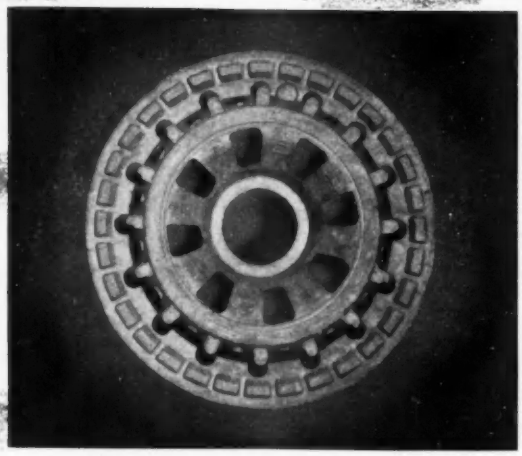
Allen-Type screws aren't necessarily Allen-Made.
Get genuine "Pressur-Formed" Allen ⬡ Head screws in this black and silver box.

Right kind of a let down



Heavy, modern, fast bombers of 1952 vintage will let down with complete confidence on these Well-Cast magnesium wheels.

More wars than we care to think about have proven this point.

These Well-Cast wheels and the wide range of other light metal aircraft castings have the facilities of four plants, technically trained personnel, and almost a half-century of experience behind them.

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If you would like to receive the Wellman magazine each month at no charge, drop us a note on your business letterhead.

AIRBRIEFS

(*Continued from page* 414)

Delay Rewarding

Although the recent rescheduling of military aircraft production is generally deplored by the manufacturing industry, it will have one beneficial effect not generally realized by enabing the industry to accelerate development work and to introduce design improvements on the production line. The most rapid production acceleration is obtained by "freezing" designs and turning out vast quantities of identical models. However, carried to the extreme this policy can prove disastrous through the irrevocable obsolescence of the design on the production line. With production now "stretched out," the industry is finding the military less critical of frequent design changes and the new schedules call for increased model sequences over the previous program.

Kaiser Gets Further Preference

Following extensive Government-industry discussion concerning the Air Force heavy press program, the final outcome is that the biggest presses will go to Henry J. Kaiser—passing up a variety of high-priority bidders in the industry. Work on a $17 million forging plant to be built by the U. S. Air Force at Newark, Ohio, will begin this spring. Upon completion the huge plant will be turned over to Kaiser for the production of an estimated three million lb of large aircraft forgings per month.

Whole Hog

It has been the practice for many years to fabricate aircraft exhaust manifolds of stainless steel and this metal was expanded to its use in adjacent areas of the engine nacelle. Now Solar Aircraft Co., San Diego, Calif., a major fabricator of stainless steel products, has extended the application to the fabrication of complete engine nacelles for the Lockheed P2V-5 Neptune patrol plane. It is claimed that in this particular application the use of stainless steel produces greater structural strength for less weight than the combination of stainless steel and aluminum alloy used heretofore. The completely stainless-steel nacelles are aready in production.

New Altimeters

The basic principle of aircraft altimeters and rate-of-climb indicators has not changed in some 30 years but modern altitudes and rates-of-climb are forcing a revolution in the field. Eclipse-Pioneer Division of Bendix

(*Turn to page* 465, *please*)

TIME SAVERS IN THREE SIZES

CLECO AIR-OPERATED SCREW DRIVERS AND NUT RUNNERS

One of these air-operated tools can cut your assembly costs by driving screws or running nuts faster. Each tool is tailored to the requirements of the job, each is light and easy to handle. Ask your Cleco Field Engineer for a demonstration.

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THE CLECO A-1 PNEUMATIC REVERSIBLE SCREW DRIVER

Scarcely larger than a fountain pen, this 9½-ounce tool is ideal for driving small screws and other fasteners.

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THE CLECO A-3 PNEUMATIC REVERSIBLE IMPACT WRENCH

This powerful tool is one of the most rugged and trouble-free ever developed. It is light, compact and well balanced. Yet it gives the powerful torque necessary for positive tightening of bolts and nuts.

For 1/4" Bolts and Screws

THE CLECO 9RSPC REVERSIBLE SCREW DRIVER

This production tool features the new Cleco adjustable clutch with sturdy slip-impact action for final tightening. Finders and bits are easily changed without dismantling any part of the tool.

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DISTRIBUTORS IN PRINCIPAL CITIES OF THE UNITED STATES AND THOUGHOUT THE WORLD

3331

Impact of Defense Activities

on Petroleum Fuel Supplies

(*Continued from page* 254)

per cent of this country's total installed horsepower, including central power stations.

More than 6 million barrels of refined petroleum products are delivered daily in this country. Oil companies are expanding their capacity as rapidly as possible to meet the increased demands of a growing civilian economy, as well as to handle the possible eventuality of an all-out war. The Petroleum Administration for Defense has urged an expansion of 1 million barrels per day over a three year period beginning January 1, 1951. It is becoming apparent that even this is not enough, and although the petroleum companies are willing to expand at a greater rate, limitations on availability of materials, principally steel, place a very real restriction on the ability to expand. This expansion in crude production, transportation, and refining, as well as in natural gas projects, primarily transmission lines, involve capital expenditures of billions of dollars.

If we are forced to fight another war, our requirements for petroleum products will exceed those of any past war. The Director of the Office of Defense Mobilization, in his first report, stated that our objective was a capacity to build 35,000 tanks and 50,000 airplanes a year. In appraising the situation, however, it may safely be inferred that the Nation will have a greater reserve from which to draw, in meeting military requirements if it continues to expand its facilities to deliver petroleum products for civilian purposes. The larger our daily capacity, the greater is the cushion to meet peak military needs. Public estimates of anticipated military demands for petroleum products have been as high as between 3 and 4 million barrels daily.

Petroleum availability is dependent on (1) crude oil production, (2) natural gas liquids production, (3) exploration and development rate, (4) crude oil reserves, (5) transportation, and (6) refining capacity.

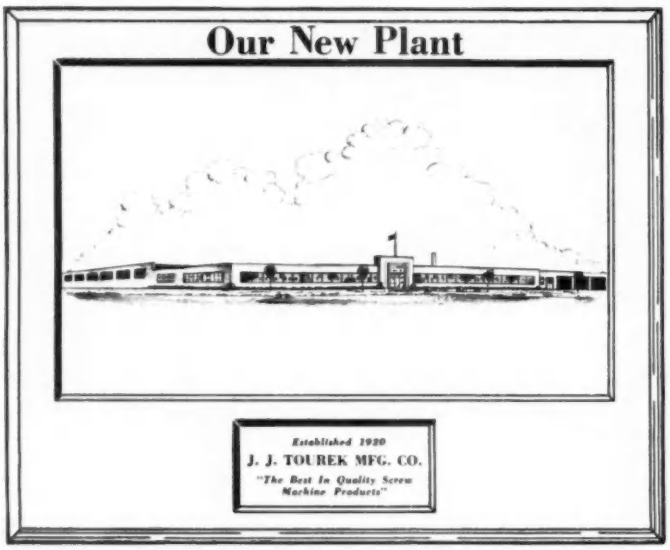
Crude Oil Production

American oil companies are producing as much oil today as did the entire world, including the United States, 10 years ago. Domestic crude production in June, 1951, was at an annual rate of 2.2 billion barrels. This was the world production in 1941.

American oil companies have also played an important part in developing the petroleum resources of the rest of the world, producing at least 75 per cent of the total world production. Including Russia and her satellites, world crude oil production in 1950 totaled 3.8 billion barrels, an all-time high.

The United States produced 51.9 per cent of the total world crude oil output in 1950. Its production, together with that of other Western Hemisphere nations, constitutes the principal oil supply available to us. Countries in the Middle East, including Iran, accounted for 17.3 per cent, and the Iron Curtain countries for 8.6 per cent. The rapid increase in the production of the Middle East area is apparent. European production outside the Iron Curtain is negligible, and Europe is completely dependent on imports from the rest of the world. Middle East and Venezuelan fields provide the bulk of these imports. Total Middle East produc-

(*Turn to page* 462, *please*)



The new Tourek plant, shown above in an artist's drawing, will soon be turning out vast quantities of precision screw machine products, ball joints and pipe plugs. All the latest in equipment for producing *"The Best in Quality Screw Machine Products."*

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Tested in heavy-duty truck engines, Moraine-400 bearings outlasted three cylinder blocks and three crankshafts. In *all* the severe tests to which it has been subjected, the Moraine-400 bearing has *never* been seriously affected . . . not even when connecting-rod bearing area in high-compression automobile engines was reduced more than half and the engine run 100 hours at 4300 r.p.m.

Tests have proved that Moraine-400 bearings, because of their high load-carrying characteristics, effectively remove many limitations in engine design and leave shaft journal length and oil hole location as the major considerations. Moraine-400 bearings operate satisfactorily on oil hardened and Tocco hardened shafts and are outstanding in embedability, conformability and corrosion resistance. For inclusion in current engine specifications, they are readily interchangeable with all standard engine bearings.

For further information about Moraine's great forward step in automotive engine bearing development, get the complete story of what Moraine-400 bearings can do for your product.

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Moraine-400 is made by the manufacturers of the famous Durex-100 bearings — now used as original equipment on many of the nation's finest cars and trucks.

Impact of Defense Activities

(*Continued from page* 460)

tion in 1950 was almost twice that of the Iron Curtain countries. Iran's production, alone, was about equal to that of Soviet Russia. About a third of the Middle East production has been temporarily lost with the closing of the Abadan refineries and the field operations of the Anglo-Iranian Oil Co. Output of the remaining Middle East fields has been increased so that the impact of the Iranian closing has not been as great as was expected. Iranian crude production before the shutdown was equivalent to a little more than 10 per cent of current United States production, and about 6½ per cent of the world's production. While this loss is serious, it is not catastrophic. It is less than the annual growth of world producing capacity in either 1949 or 1950. A spread of the difficulty in Iran to other Middle East countries could have serious repercussions.

The United States East Coast normally receives residual oils and crude from the Caribbean area. Some of this flow has been diverted to Europe to meet the loss of the Iranian supply. Venezuelan production, much of which is available for export to European countries, has been running more than twice the former Iranian rate. An expansion of European refineries has been undertaken through the E.C.A. so that Europe will have sufficient refining capacity to meet its needs by the end of 1952, provided adequate crude is available. The program contemplates the refining and use of Middle East petroleum in Europe.

If Middle East crude is available, the demands on Western Hemisphere crude supplies will be lessened. Furthermore, if European countries can purchase crude oil rather than refined petroleum products and do their own refining, the demands on their dollar resources are reduced.

Natural Gas Liquids Production

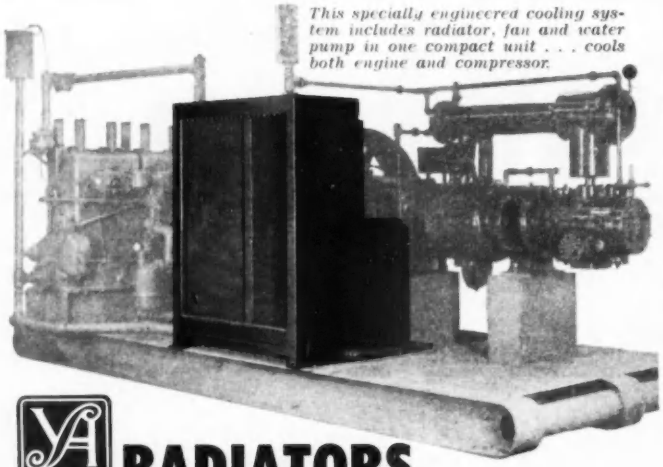
The tremendous increase in the use of natural gas has been accompanied by the construction of processing plants to extract the natural gas liquids which today form an important source of refined petroleum products. Natural gas liquids are composed of propane, butanes, pentanes, hexanes, and a small amount of higher boiling hydrocarbons. Some of these materials, i.e. propane and butane, are marketed as liquefied petroleum gas (LPG). The production of these materials is undergoing rapid expansion at this time.

Gasoline

Table 2 shows how the production of gasoline has been increased since 1939. It also shows the impact of the aviation gasoline requirements during World War II.

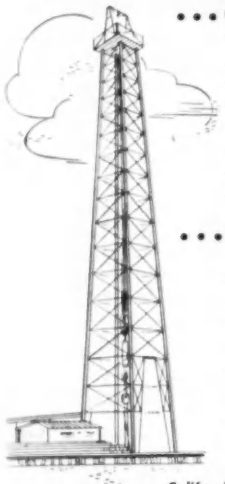
Total gasoline production in 1944 was 739 million barrels as contrasted with 611 million barrels in 1939. The production of motor fuel dropped from 599 million barrels in 1939 to a low of 501 million barrels in 1943, a decrease of 16.3 per cent. All the motor fuel shown in Table 2 was not available for civilian requirements. Needs of the Army ground forces were included in this reduced total vehicular gasoline production. The ground forces were using approximately 16 per cent of all non-aviation gasoline at the peak of the conflict. This left only 420 million barrels for civilian vehicular use contrasted with almost 600 million barrels in 1939. This decrease necessitated the rationing of gasoline for non-essential civilian driving. Aviation gasoline accounted for only 11½ million barrels and 1.9 per cent of the total gasoline production in 1939. It accounted for 196.4 million barrels and 26.6 per cent of the total gasoline production in 1944, the peak year of the war effort. This was an increase of more than 1600 per cent in aviation gasoline production. Production of

(*Turn to page* 464, *please*)



This specially engineered cooling system includes radiator, fan and water pump in one compact unit . . . cools both engine and compressor.

YA RADIATORS



. . . designed for special conditions

Boosting natural gas pressure at the well or at critical points along the pipeline calls for real dependability in compressor units . . . and their radiators. They serve in isolated places where breakdowns mean double trouble. And they are often moved from one point in the line to another so they have to be able to withstand rough treatment.

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To meet these demands, manufacturers of pipeline equipment come to Yates-American . . . where special engineering to meet special conditions is a tradition.

Whatever your product — compressor, excavator, power plant, truck, tractor or locomotive — you can be sure the radiator will be engineered to match it if you come to Yates-American. Write today for further details.

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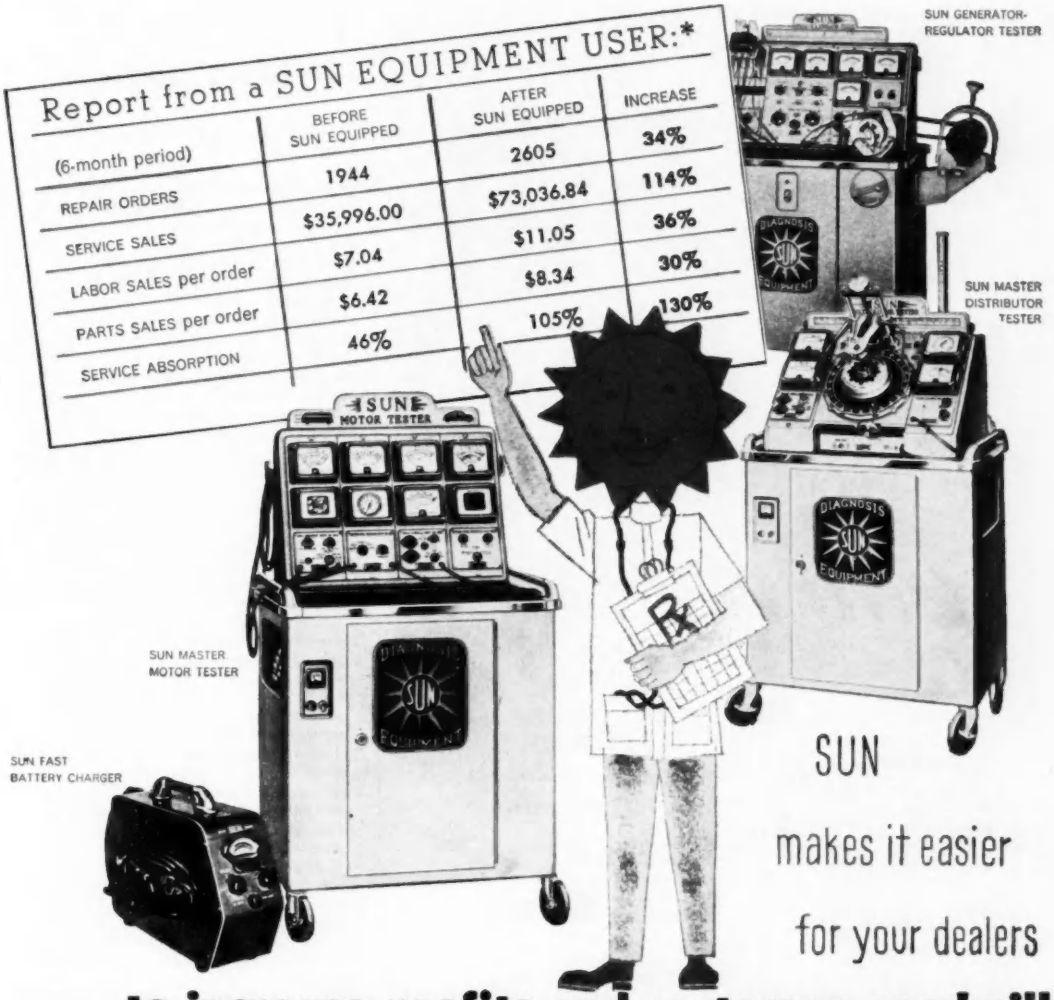
Report from a SUN EQUIPMENT USER:*

(6-month period)	BEFORE SUN EQUIPPED	AFTER SUN EQUIPPED	INCREASE
REPAIR ORDERS	1944	2605	34%
SERVICE SALES	$35,996.00	$73,036.84	114%
LABOR SALES per order	$7.04	$11.05	36%
PARTS SALES per order	$6.42	$8.34	30%
SERVICE ABSORPTION	46%	105%	130%



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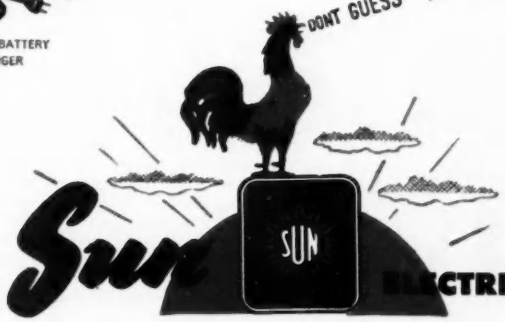

The report above is not unusual. The same thing is happening in thousands of shops using the SUN Diagnosis Program. This shop owner reports not only a large increase in parts and labor sales but a practical elimination of customer comebacks. He charges $4.50 for a SUN Diagnosis and shows a 12% increase in new customers. Most of his customers order a SUN Diagnosis everytime they return for service.

What SUN Diagnosis and SUN Training for mechanics is doing for this shop owner and thousands like him, it can do for your car dealers, too. SUN has a Program practically tailor-made to fit shop requirements, regardless of size.

SUN will be glad to cooperate with car factories to make this program available to all their dealers. We will be happy to show you complete reports on thousands of SUN-Equipped shops and make special surveys and recommendations for your dealers.

*NAME OF SHOP OWNER FURNISHED ON REQUEST

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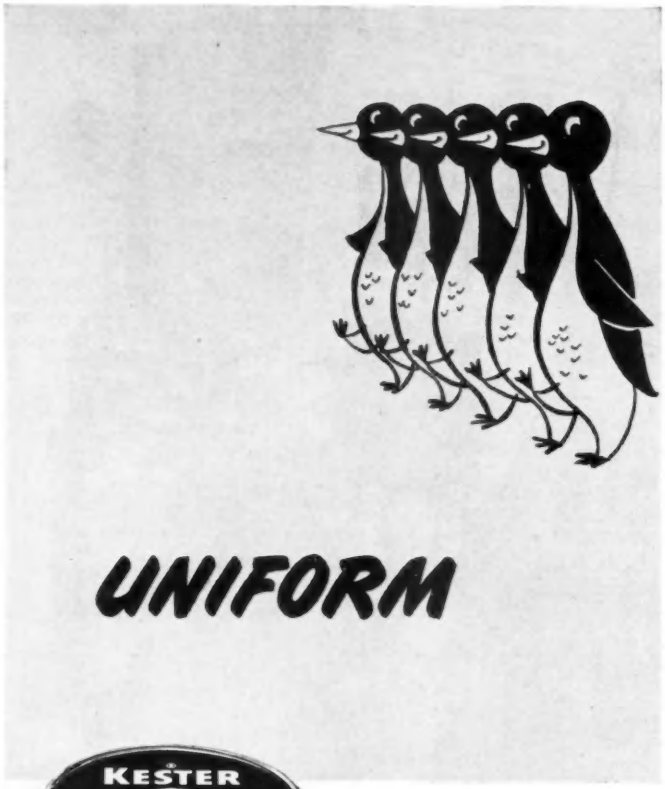

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Kester alone has that necessary flexibility of flux-content (different core-sizes) providing just the right amount of flux needed.

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KESTER SOLDER

Impact of Defense Activities

(*Continued from page* 462)

high octane gasoline in 1950 was approximately 51 million barrels, about one-fourth of the peak production during World War II, but almost five times the production of 1939. High octane aviation gasoline was produced at an annual rate of 69 million barrels during the first six months of 1951, and accounted for 6.2 per cent of the total gasoline production. This is the highest rate achieved since the end of World War II.

Production of gasoline for motor vehicles was at an annual rate of about a billion barrels during the first six months of 1951. This compares with 600 million barrels in 1939, an increase of about 73 per cent. Motor vehicle registrations have also increased since 1939 by 59 per cent, and annual gasoline consumption per car is up about 10 per cent since 1939.

Civilian gasoline demands absorb the available supply, and some may draw the conclusion that there is no greater margin today to meet increased requirements than there was in 1939. This is not the case, however, as it is far easier to meet military needs by diverting the necessary gasoline from a large daily output than it is from a much smaller one. The expansion of our civilian uses actually provides a more substantial cushion to meet military needs.

The demand for jet fuel is one of the imponderables. Requirements for jet fuel in an all-out war are not available. It is a certainty, however, that much of the straight run gasoline will be diverted to this usage along with portions of the kerosene and distillate cuts. If most of the straight run gasoline is taken from motor fuel and used for jet engines, the remaining motor vehicle gasoline will contain a larger percentage of cracked products, and hence have a higher octane number than otherwise. Should the Air Forces expand their demands for piston engine fuels rather than jet fuel, then the resulting gasoline diversion would take more of the cracked gasoline. Octane numbers for the remainder left for civilian use would then be adversely affected. Under the conditions of an all-out war, there can be no question that motor vehicle gasoline demand will be compressed through rationing to enable the oil industry to meet whatever demands the armed services may impose for aviation fuel, whether it be jet fuel, high octane fuel, or both.

The remarkable performance of the oil producers in meeting the unanticipated demands of the Korean war provides confidence that, barring the catastrophe of an all-out war, severe gasoline rationing may be avoided.

AIRBRIEFS

(*Continued from page* 458)

Aviation Corp., has devolped two new types of altimeters. For altitudes between 150,000 and 300,000 ft a Pirani-type gage is used in which atmosphere is passed continuously through a tube as the aircraft or missile climbs. A cathode element radiates heat through the glass tube to a temperature-sensitive element. Since heat radiation is directly controlled by the air density, the latter is quickly and continuously determined. For altitudes between 300,000 and 500,000 ft an ionization gage is used containing a plate, grid and filament.

Try Again

President Truman has made a formal request of Congress for $1,620,000 to be used for the testing of jet aircraft in simulated commercial airline operation. This is the last vestage of the once grandiose plan for a huge Government subsidy program for the development of prototype transport aircraft. While none can predict what Congress will do in the matter, the fact that 400 transport aircraft are now on order, that American Airlines' has just announced a $10 million profit for 1951, and that all concerned have turned thumbs down on the idea of jet transport aircraft in the near future combine to prophesy tough sledding for the idea in an economy-minded election year. Under the measure, the Civil Aeronautics Administration would conduct flight tests of the Navy Douglas F3D night fighter, the North American B-45 four-jet medium bomber and the now-unused Avro (Canada) Jetliner, development work on which has been shelved.

Private Flying Fading

The radical change in the nature of light aircraft use since 1946 is seen in recent figures released by the Civil Aeronautics Administration which indicate that only about 18 per cent of currently licensed civil aircraft are used for pleasure and sport. More than 30 per cent are used for business, 20 per cent for instruction, 12½ per cent for farm and ranch use, seven per cent for seeding and spraying and 5½ per cent for charter operation. The remainder of the 59,544 non-airline aircraft is used by Federal and local Governments. More than 30,000 airplanes in the U. S. are currently in disuse and these, together with those of the scheduled airlines, create a grand total of 92,809 registered civil aircraft far more than the rest of the world combined. It is of interest to note that there are 168 licensed commercial helicopters in the U. S. also far greater than those of the rest of the world.

GEAR PROBLEM SOLVED

by GARRISON COMPLETE GEAR CHUCK SERVICE

Garrison Gear Chuck Service starts with your gear print and follows through with a complete service for the life of the chuck. Over thirty years of experience in designing and manufacturing pitch line control gear chucks exclusively, has built up a wealth of engineering knowledge. This knowledge is applied to designing the best custom-built gear chucks for solving your gear problems.

For detailed information as to equipment and price, mail us your gear prints marked to show the operation to be performed and the machine or machines used.

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Press for Every Operation

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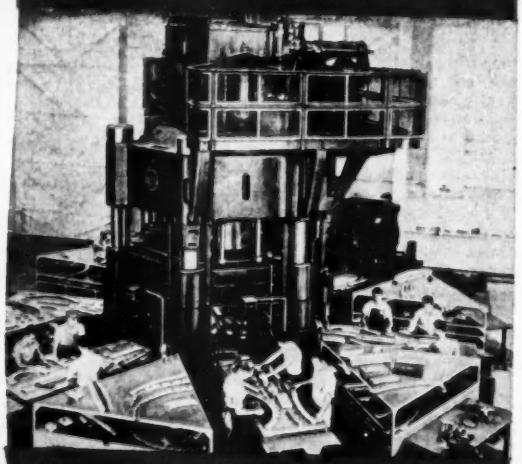
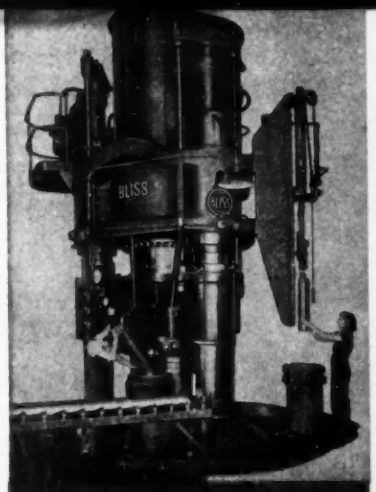


RUBBER PAD FORMING



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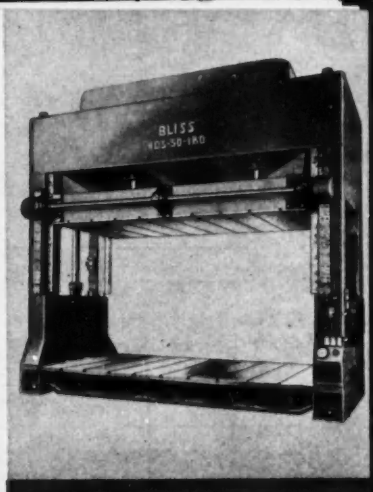
COINING



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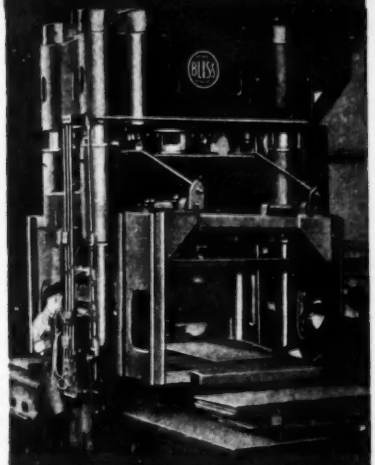

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Presses, Rolling Mills, Special Machinery

For the right press
for a given job . . .
Hydraulic or Mechanical . . .

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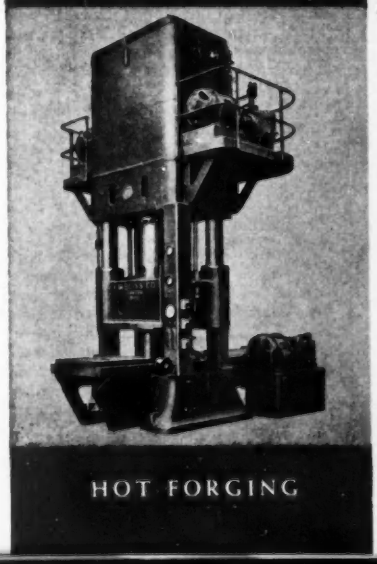

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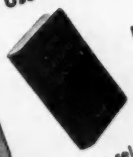

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To meet the military requirement of starting engines at —65 F, the South Wind Div., Stewart-Warner Corp., Indianapolis, Ind., has brought out an engine pre-heater. This heater, which can be used on either liquid or air-cooled engines, burns liquid fuel and can be operated either automatically or manually. Clean warm air is applied directly on frictional parts inside the engine. It is said to be light in weight, and readily installed on practically any type of engine.

1952
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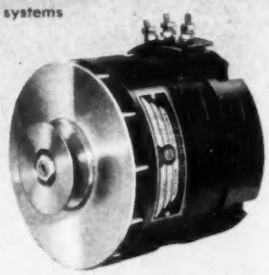
Today's accessory load takes more current from the battery than conventional d.c. generators can put back in. Batteries fail . . . vehicles break down . . . costs mount.

For 1952 performance, replace out-dated d.c. generators with the Leece-Neville AC-DC Alternator System, that gives you

25 TO 35 AMPS WITH ENGINE IDLING

There are Alternators for 6 and 12 volt systems with capacities from 50 to 150 amps.

Write the Leece-Neville Company, Cleveland 14, Ohio. Distributors in principal cities Service Stations everywhere.



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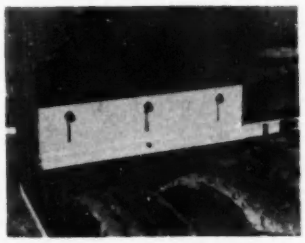
STARTING MOTORS • REGULATORS • SWITCHES
FRACTIONAL HP MOTORS

TRUCK BUS DIESEL OFF-HIGHWAY
PASSENGER RAILROAD MARINE INDUSTRIAL

K-72—Mud Guard



Recently developed for the trucking industry is a cab mud guard designed to protect tractor cabs, air line connections, refrigeration units and other rear-mounted equipment from dirt, tar and mud thrown up by the rear wheels of the tractor. The unit has been accepted by one of the nation's leading truck manufacturers as a standard accessory in its line. It was developed by Whitehill-Eaves, Inc., Cleveland, Ohio.

Cab mud guard can be mounted to the tractor frame ahead of the rear tires. The unit is mounted by means of a 1½-in. steel tubing assembly 7 ft 11-in. long. Tubing is fastened to the tractor frame with two tension clamps which grip the underside of the frame on each side of the tractor.

K-73—Side Mirror Shield

Allen Products Corp., Detroit, Mich., have announced the addition of a side mirror shield to its line of automobile accessories. The product, the company states, prevents deposit of rain, snow and ice on side mirrors, eliminates glare from sun, and greatly reduces annoyance from lights of following cars. Trade - named Vision - Aide, mirror shields are made of stainless steel, in two sizes, to fit round passenger car and truck mirors. The shields are attached by snapping into place over the mirror frame.

K-74—Automotive Enamel Line

Bruning Brothers, Inc., Baltimore, Md., have added 1001 automotive enamel to its industrial paint line. This enamel is described as an efficient paint for interior or exterior use on construction equipment, trucks, trailers, farm equipment and industrial use wherever durability is of importance.

Bruning's 1001 automotive enamel

(*Turn to page* 470, *please*)

You are Looking at JOHNSON SLEEVE BEARINGS On the Job

JOHNSON Sleeve Bearings are designed for specific jobs . . . to help some shaft turn freely and with the lowest coefficient of friction. They are engineered to precise dimensions and finished to fit perfectly. Each Johnson bearing is multiple checked for this precision in every dimension, to simplify installation in assembly line production and eliminate costly delays. For over fifty years these Johnson Sleeve Bearings have been delivering long, low cost service in America's automotive equipment.

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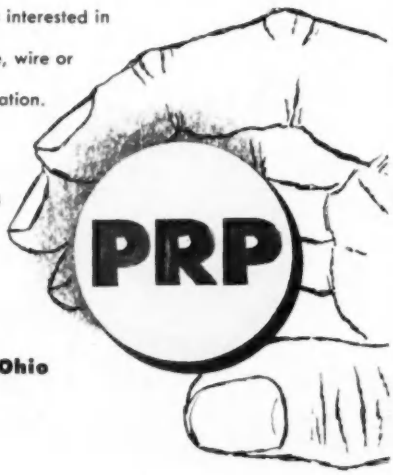

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NEW PRODUCTS

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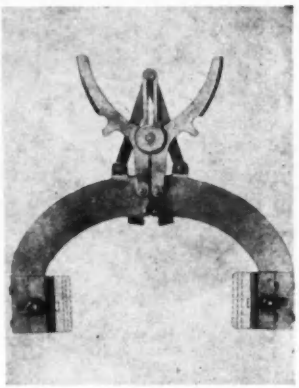
(*Continued from page* 468)

can be applied by either spray or brush. It is reinforced with pure alkyd resin. At present, it is available in the popular standard truck and tractor colors, as well as black and white. Individual truck fleet colors are available on special order.

K-75—Expander for Larger Piston Rings



Zim Mfg. Co., Chicago, Ill., have brought out a piston ring expander for rings from 4½ to seven in. capacities.

K-76—Clearance Light

A heavy-duty flush-type clearance light that is claimed to be vapor and explosion-proof has been announced by Betts Machine Co., Warren, Pa. The light meets or exceeds SAE recommended procedures, ICC and state requirements according to company reports. It is completely wired, ready for installation.

Designated as the Warren snap seal B-60 clearance light, the unit was developed to provide safer, improved lighting under severe service conditions.

Exclusive features of its functional construction include the snap seal arrangement that holds a new-type plastic lens bubble-tight within a cast aluminum alloy body which is also a parabolic reflector. This pressure-seal is achieved through the use of a special composition.

FRONTIER 40-E
ALUMINUM ALLOY

Giants of long ago had plenty of strength but too much weight to make them 100% efficient. Modern industrial might is measured in strength, too, but weight must be kept at an absolute minimum.

In order to give you all the strength you need to meet the casting requirements of the transportation, manufacturing and military fields, *plus extremely light weight*, we have developed FRONTIER 40-E Aluminum Alloy. You'll find this non-heat-treated alloy has excellent machineability, superior shock and corrosion resistance and pressure tightness — all qualities that assure you the production results you're looking for. In addition, there's *test bar uniformity* throughout large castings!

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NEW AIRCRAFT PRODUCTS

For additional information regarding any of these items, please use coupon on page 416

T-11—Magneto with Speed-Limiting Governor

F. T. Griswold Mfg. Co., Wayne, Pa., has on the market Vertex magnetos with built-in speed governors for internal combustion engines in which it may be desirable to limit engine speeds. The device governs speed by interrupting ignition at any predetermined maximum setting and is said to be positive in action. Developed by Scintilla S. A. the Vertex governor utilities centrifugal force and counterweights in an assembly built into the lower section of the magneto to interrupt ignition at the desired maximum rpm.

Governor equipped magnetos are built to specifications. Speed settings cannot be altered in the field but can be reset at the factory.

Griswold Veritex magneto with speed limiting governor.

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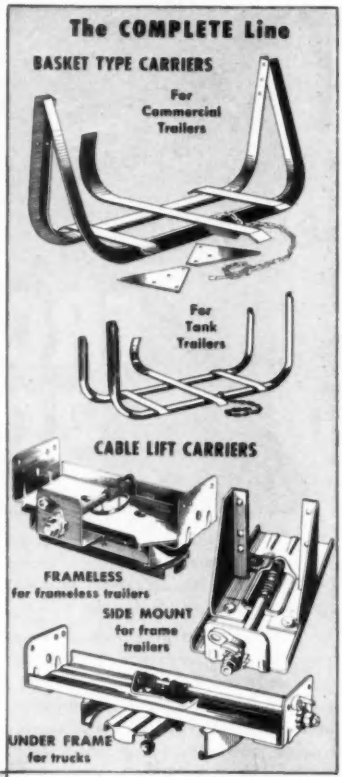
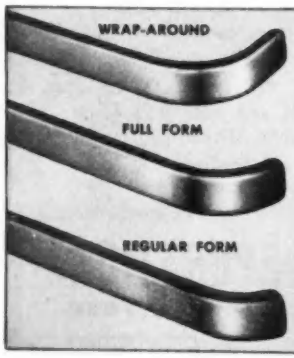
See Your Equipment Supplier or Write Direct For The Nash Tire Carrier Bulletin





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T-12—Self-Propelled Generator Set

The Lycoming-Spencer Div., Avoco Manufacturing Corp., has recently unveiled a self-propelled generator set for use in starting jet engines and checking out aircraft electrical systems. The device, termed the J-22 B1, is the marriage of a standard jeep to a combination of alternate current and direct current electric generators, all of which are powered by one aircooled engine.

The self-propelled generator is built for use in temperatures ranging from minus 65 F to plus 130 F. It has a top speed of up to 60 mph on the road. It puts out 30 kw of generated power and can be used for towing airplanes.

Standard sea level engine power has been increased from 95 to 120 hp to assure adequate electrical output at high airport altitudes and under hot weather conditions."

The 0-290-G5 engine is used for propulsion of the jeep through a transfer case mounted on the flywheel and cooling fan housing. It drives the generators, through a power takeoff shaft to the step-up gear generator drive assembly mounted aft of the driver's seat. A separate manually operated clutch engages and disengages the drift shaft to the speed increaser housing which drives the generator. This allows the operator to drive without using the generators.

Aircraft Industry Problems

(*Continued from page 253*)

istration for failing to meet its goals.

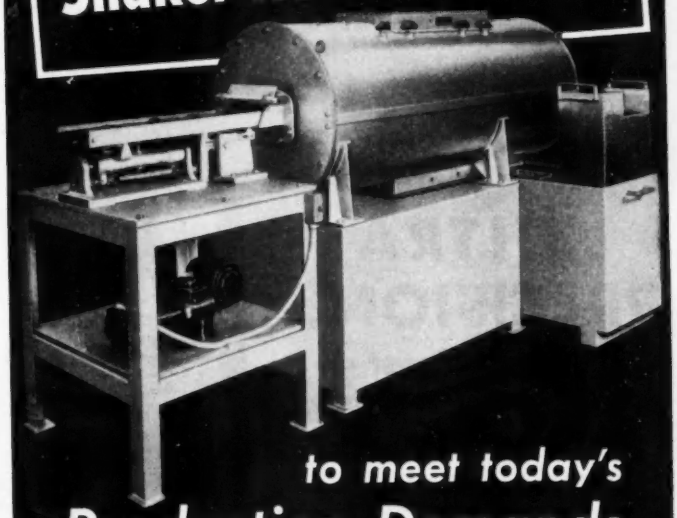
Firstly the size of the task has been multiplied by the growth in complexity of modern combat aircraft. This growth may be measured by the fact that it now requires about ten manhours to produce the same amount of airframe weight as one manhour produced in World War II. This means that instead of producing the 50,000 airplanes demanded (and delivered) of the industry early in World War II, the same amount of manpower today would produce only 5000. Since manpower costs are approximately double those of World War II, the same program will cost roughly 20 times as much, or only one-twentieth of the World War II production rate can be obtained for the same expenditure of money. With these rough but useful yardsticks it is possible to more realistically gage the industry's performance.

Peak industry employment in World War II was reached in November 1943, when airframe and industry plants employed 1,383,000 people. In that same month the industry produced 8789 aircraft. That same number of people today would produce roughly only 879 airplanes but present employment is only one-third the wartime peak so that the industry can produce only 293 aircraft per month. Using these ratios it is clear that to obtain the 1000 airplanes per month desired will require an aircraft labor force of 1,540,000 or far beyond the World War II peak. At the present rate of hiring of about 20,000 new employes per month, it will require 54 months or four and one-half years to obtain present production goals. The Administration says that the present goal will be reached in only 18 months, or about one-third of that time. The conclusion is inescapable that the hiring rate will have to be trebled to about 60,000 per month. Finding one million new workers for the aircraft industry won't be easy.

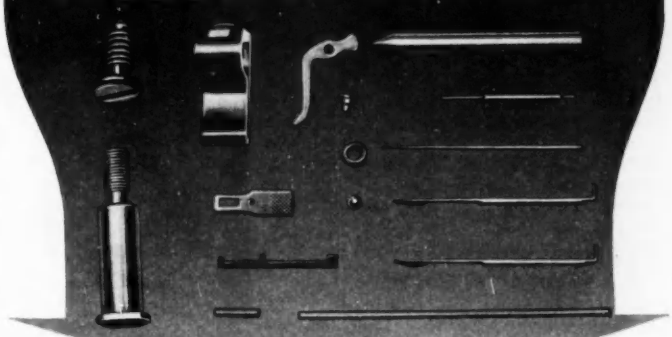
One way the Administration is attempting to step up this hiring rate (through the device of bringing new companies into the program) is to permit a 10 per cent "bonus" payment in the award of procurement contracts in areas of labor surplus. Whether a political or a production move, the fact remains that procurement officials are thoroughly confused by the new regulation despite the fact that it has received an affirmative ruling by Comptroller General Lindsay Warren. Existing rules and regulations designed specifically to prevent bonus payments of any kind and to discourage negotiated contracts whenever possible must be set aside in the daily operation of the local

(*Turn to page 474, please*)

use this HEVI DUTY Shaker Hearth Furnace



to meet today's Production Demands



Hevi Duty Shaker Hearth Furnaces are used to bright carburize, bright dry cyanide or bright harden these small parts without distortion. Shaker Hearth furnaces process up to 150 lbs. per hour. Case depths are accurately controlled, and results are uniform. Learn more about this versatile Hevi Duty furnace.

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Aircraft Industry Problems

(*Continued from page* 473)

procurement office. That the move has suggested political motives in this election year lies in the fact that all such contracts are subject to later review under the renegotiation provisions of the law and such review cannot be made until well after the November elections. But the new idea will provide additional labor for the aircraft production program and thus may well serve both national defense and administration political aims at the same time.

Upsetting this whole "rule-of-thumb" approach to the problem, however, is a vague rumbling in the industry that productivity per manhour is beginning to fall for the first time in several years. This is a product of many factors but can create serious additional burdens on the program. Although the ratio of 10-1 in manhours required for aircraft production today as compared to World War II includes the factor of increased aircraft fabrication difficulty due to heavier and tougher materials and detailed complexities, it does not include the vast additional training required of a new recruit. Whereas aircraft industry hiring over the past two years has been 90 per cent veteran industry workers returning to the fold, current hiring is running less than 75 per cent and this ratio is certain to drop at an increasing rate in the future as the reservoir of experienced workers dries. This is a product of the "guns and butter" philosophy so often discussed today. So long as the veteran aircraft worker receives high wages in his present non-defense job, hiring him will remain difficult. But as rapidly as civilian production is cut back, then as rapidly will this worker move back to the aircraft industry.

The handling of the heavier, tougher materials as well as the greatly more complex and delicate equipment items now going into high speed combat aircraft is demanding an infinitely higher intelligence and skill on the part of the labor force. The use of increasingly complex machines to fabricate new aircraft serves to reduce the manhours required for the job but at the same time it is rapidly eliminating the "simple" jobs into which the World War II aircraft was broken down to accommodate unskilled workers. The modern supersonic fighter wing is now being made of long, wide sheets of either milled or rolled tapered stock. The amount of riveting is being reduced to as little as 10 per cent of its World War II counterpart, whose wing was made up of leading and trailing edge, upper and lower skin plating, tip and other subassemblies easily processed by unskilled workers. The World War II wing department, then, could assign as high as 1000 manhours daily to fabrication of a single wing. Today that same wing can absorb only 100 manhours daily. Unless the new wing fabricating machines can reduce the manhours required in this same ratio of 1-to-10, then the output of the wing is losing ground in the process.

The machine tool problem is with all industries today and has been thoroughly analyzed in these pages. It has been, and is, difficult enough to obtain additional machine tools, but when the replacement rate goes up too the result is a compounding of the problem. New materials also demand additional machine fabrication since their heavier gaging and reduced ductility greatly reduce the amount of hand-forming and installation-fitting common in earlier days. This has accounted for the remarkable growth of the stretch-press in aircraft fabrication and an enormous increase in the use of hydropress forming of aircraft parts. Resistance welding also has made remarkable gains in

(*Turn to page* 476, *please*)

ULTRA PRECISION...

and at least 10% longer wear!

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In the manufacture of A·B·C Bushings, we use only electric furnace steel alloy containing chromium and/or tungsten. This has been our policy since the inception of the business, so there is no backlog of inferior stock or blanks to be used up • **Heat Treatment,** including quenching, is done under neutral atmosphere conditions controlled by electronic and completely automatic time clock supervision • **Recording Instruments** show entire heat treatment cycle, including both hardening and tempering temperatures • **Latest methods of inspection,** including air gauging, coupled with the most modern types of honing and grinding equipment, insure dimensional accuracy • Thus top quality steel, correct for its purpose, the last word in processing equipment and fine care exercised at each step of processing, team up to make A·B·C Bushings

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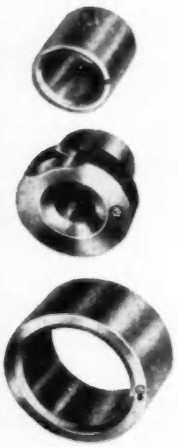

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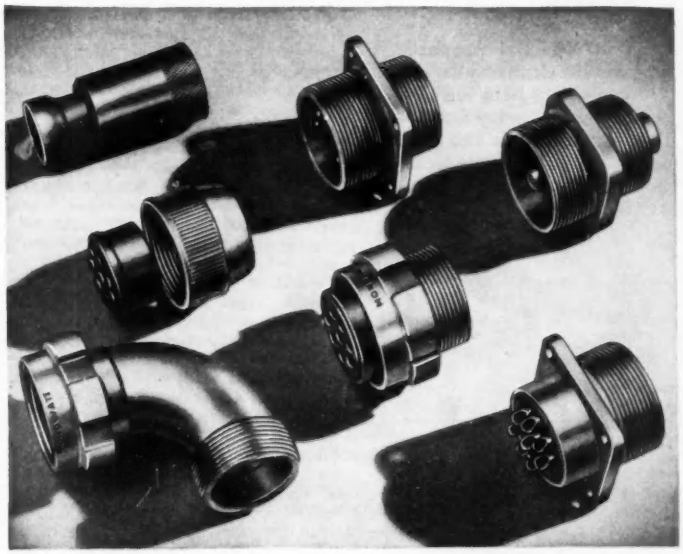

Connectors made to Government specifications, for ordnance vehicles. Includes a complete line of accessories which provide moisture-proofing, radio shielding, prevention of wire breakage, and use under special applications.

Pictured here are the basic styles of ordnance connectors made by Monowatt, with several accessories. What the camera cannot show is the organization back of the product—the sound engineering, expert workmanship, and facilities for mass-production.

Monowatt is now supplying ordnance connectors for such companies as American Locomotive (for tanks), Auto-Lite (for vehicle generators and voltage regulators), as well as Detroit Tank Arsenal (for spare parts for tanks).

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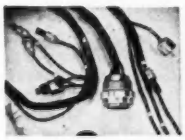

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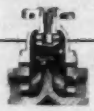
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Aircraft Industry Problems

(*Continued from page* 474)

aircraft fabrication in the past few years due, in large measure, to improvements in the process itself, but due also to increased skin gages.

Despite these vastly increased costs and fabrication difficulties, we are receiving new aircraft well worth the money. There can be no question that the U. S. now stands head-and-shoulders above the rest of the world in the quality of its combat aircraft, despite biased criticism to the contrary. Disappointment in the relative performance of our North American F-86 Sabre and the MiG-15 fighters in Korea stems not from a criticism of the former so much as a surprise in the latter. Those who had assumed that Russia had "nothing" have been surprised that it has, indeed, "something" but this does not imply a Russian superiority. It is of interest to note that while General Vandenberg was telling the world that the Sabre was no match for the MiG above 25,000 ft, the Navy had available right in Korea on its carrier a fighter, the McDonnell F2H Banshee, capable of fighting well at altitudes above 50,000 ft! Why this extremely **high-altitude aircraft** has not been sent against the MiG is buried in that ancient inter-service battle for prestige that all thought dead these five years.

For its money, the American public is getting the fastest bomber in the world (Boeing B-47), the biggest bomber in the world (Convair B-36) and the most advanced bomber in the world (Boeing B-52). It is getting the highest-flying fighter in the world (McDonnell F2H), the fastest carrier fighter in the world (Vought F7U) and the most advanced night-fighter in the world (Northrop F-89). It is obtaining helicopters with which there is absolutely no remote comparison anywhere else in the world. It is getting heavy, fast transport planes that are unmatched by any other nation. It is getting radar equipment, automatic fire control systems, automatic jet engine control systems and cabin pressurizing and conditioning equipment second to none in the world. All of these things cannot be dismissed lightly for at the very root of all procurement programs lies the technical excellence of the product and all the production in the world of an inferior aircraft cannot wash away the absolute necessity of having in hand superior equipment even in smaller numbers.

The new 1953 fiscal year budget request by the President is designed to continue the current program through answering its special problems. For example, the $6.6 billion provided by fiscal 1951 and the $11.2 billion provided by

(*Turn to page* 479, *please*)

Now . . . "individually engineered" panelboards . . . in minutes!

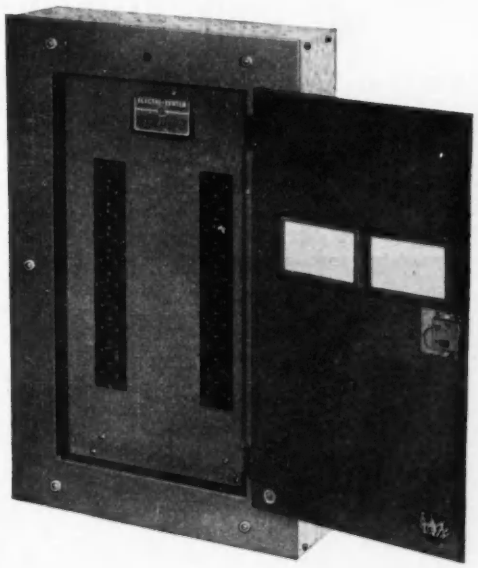
BullDog's new principle of standardized units offers *immediate delivery, savings, new flexibility* on Pushmatic panelboards up to 42 circuits

Here's news that panelboard users have waited years to hear! By standardizing on component parts, BullDog has engineered 5 basic panel interiors that can handle all requirements up to 42 circuits.

For the first time, you can get panelboards that meet your specifications *exactly* . . . that are, in effect, "individually engineered" to your needs . . . and still get them *immediately*, right from the shelves of local BullDog suppliers. You can stock them yourself, since only 5 standard units fill the specifications that hundreds of items did before.

Savings and new flexibility are yours, too. Because these BullDog panelboards are standardized and mass-produced, they cost less. Interchangeable Pushmatic circuit breakers are always available in a wide range of ampere ratings to meet present *and future* circuit requirements. Extra spaces in the basic devices let you add up to 36 circuits *after* installation!

So forget about costly, custom panelboards that take weeks to build and deliver . . . or those that don't have the flexibility to meet changing requirements. Ask for BullDog Pushmatic Electri-Center Panelboards at your BullDog supplier's.



BullDog Pushmatic Electri-Center Panelboards. For complete details, write for free copy of Bulletin No. 513.

BULLDOG Pushmatic Electri-Center Panelboards

- For plants, commercial buildings, institutions.
- Underwriters'-listed up to 42 circuits.
- Individual Pushmatic units (Thermal Magnetic) rated 15, 20, 30, 40 and 50 Amps.; quick-mounting, fully interchangeable
- Meet Federal Specifications WP 131a Class A
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One user of 8 Moto-Truc Walkies, reduced the man hours unloading a boxcar from 16 to 4. Viz:—One man with a Moto-Truc Pallet now does in 4 hours what formerly took 2 men 8 hours with former methods.

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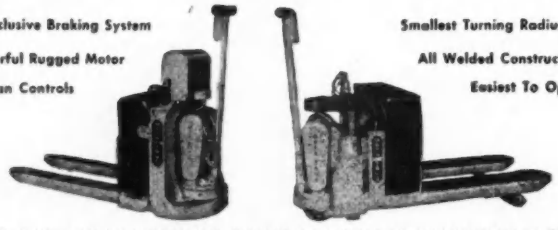

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Aircraft Industry Problems

(*Continued from page* 476)

the fiscal 1952 programs virtually loaded the industry for the next two years. Consequently, the new fiscal 1953 budget provides only $10.6 billion for this purpose, a reduction of 5½ per cent. However, the $11 billion made available for actual expenditure in the liquidation of contracts during the year amounts to an enormous increase over the $5.8 billion provided for the purpose last year and the $2.2 billion the year previous. Thus, the industry will receive less new orders during the new fiscal year but will receive nearly twice as much actual cash. The Navy will obligate $3.2 billion for new aircraft procurement during fiscal 1953, a reduction from the $3.8 billion of the current fiscal year. Army aircraft procurement of liaison aircraft and helicopters will drop from $60.7 million of the current fiscal year to only $36.1 million in the 1953 fiscal year.

Guided missile procurement by three branches of the service will be up substantially in the new fiscal year. The Air Force will buy $300 million worth, compared to $130.8 million in the current year. The Navy will buy $152.8 million worth, compared to only $33.8 million now and the Army will buy $2.558 billion worth of "ammunition and guided missiles" compared to $2.121 billion in the current year, although this latter item is not further delineated.

As the nation's No. 1 defense production program, the outlook for the aircraft production program for the year is for increasing assistance in breaking its bottlenecks and the first substantial realization of the potential it has been building over the past 18 months. Expansion of the plant should be completed by mid-year and significant output gains registered for the remainder of the year. January, 1953, should find the industry producing at an all-time postwar high figure of about 750 planes per month, three-quarters of them jet. Heavy pressure on personnel recruiting should drive total industry employment up as high as 750,000. But its manifold headaches are due for no letup during the remainder of this year.

First F-84 Wings Produced at Plant of Servel, Inc.

Servel, Inc., has announced that the first set of F-84 Thunderjet fighter plane wings recently came off the assembly line at its new multi-million-dollar wing plant nearly two months ahead of schedule. The wings will be shipped to Republic Aviation Corp. on special 60-ft carrier trucks, each carrying 16 nested panels.

Cory Corp. Receives Order for B-47 Bomber Parts

Cory Corp. has reportedly been awarded a substantial order for the production of pilot and co-pilot pedestals for the B-47 bomber by Lockheed Aircraft Corp. The exact amount of the contract was not disclosed.

Justrite Metal Products Acquires Matthews Plant

Justrite Metal Products, Inc., has announced the purchase of the former Matthews Tire and Tread Co. plant at Falconer, N. Y. Justrite has been manufacturing airplane parts under Government contract and is said to be tooling up for the production of jet aircraft parts.

Mich. State to Conduct Nuclear Energy Parley

Michigan State College has announced that it will hold a conference on Nuclear Energy May 20 and 21, with emphasis to be placed on the uses of nuclear energy in industry and for power generation. Dow Chemical Co. is one of the firms contributing to the program.

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Rubber Plantations Urged for Americas

Fifteen years of experimentation have proved that natural rubber can be grown successfully and economically in the Western hemisphere, according to P. W. Litchfield, chairman of Goodyear Tire & Rubber Co. He said that, as a result, the U. S. can lessen the peril of being cut off from far eastern sources of natural rubber by creating a living stockpile in this hemisphere, thus cutting down on the strategic storage problem.

He suggested that 300,000 acres of new rubber plantings be established to yield ultimately 150,000 tons of natural rubber a year in a suitable climatic zone stretching from the southern part of Mexico to Brazil and Bolivia. The cost of development was estimated at $100 million, covering a six- to seven-year period up to the point of tapping the trees.

Mr. Litchfield reported that Goodyear has had rubber plantings under cultivation for the past 15 years in Costa Rica and, in addition to overcoming the serious problem of leaf blight, has demonstrated that natural rubber can be grown there at sufficiently low cost to compete with output from the Far East.

First Cargo Helicopter Is Delivered to Army

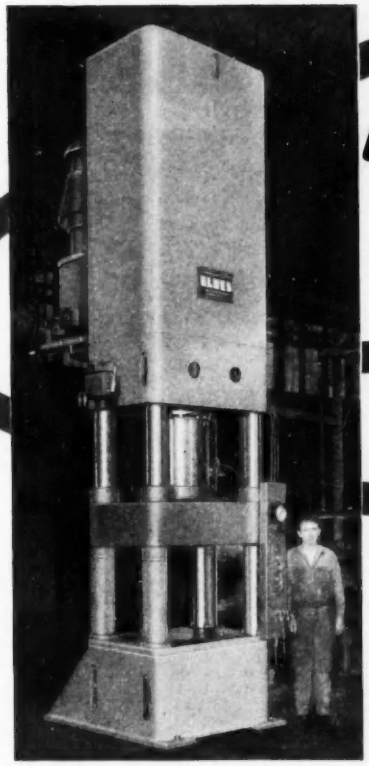
The first cargo helicopter manufactured for the Army has been delivered by Sikorsky Aircraft Div. of United Aircraft Corp. Identified as the H-19, it is a single-rotor helicopter with a capacity of 10 passengers or eight litters, plus a pilot and co-pilot, or a ton of cargo, plus a pilot and co-pilot. The craft is the first of 97 ordered for delivery during 1952.

Detroit Aluminum & Brass Appoints W. C. Schonberg

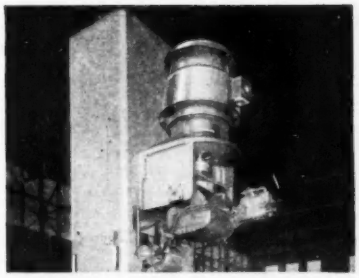
Detroit Aluminum & Brass Corp. has announced the appointment of W. C. Schonberg and Associates, Minneapolis, Minn., as factory representatives. The firm will distribute the company's replacement line of engine bearings to automotive jobbers and dealers in Minnesota, Iowa, North Dakota and South Dakota.

Minneapolis-Moline Profit Shows Drop

Despite increased sales during the last fiscal year ended Oct. 31, 1951, Minneapolis-Moline Co. showed a drop in net profit from the previous year. Earnings before taxes last year were $13,488,922, compared with $12,714,132 in 1950; but due to increases in taxes, net earnings declined to $5,348,875, compared with $7,001,711 the preceding year.



Elmes Pipeless Press designed for use in hot or cold nosing of artillery projectiles. Note complete absence of conventional high-pressure piping in main hydraulic circuit.



Rear view of upper section of above press, showing Pipeless Pumping Unit The only pipes on entire press are pilot lines, pressure gauge line, and drain lines. Of these, only the pressure gauge line carries high-pressure fluid.

Munitions Manufacturer Scores "DIRECT HIT" ON MAINTENANCE COSTS!

...with *Elmes* PIPELESS Hydraulic Presses

Shown here is one of a group of Elmes Pipeless Hydraulic Presses recently installed in the plant of a large munitions manufacturer. These revolutionary new-type presses will be used in the production of artillery projectiles.

High production and virtual elimination of downtime are assured by the Elmes Pipeless design which *puts an end to high-pressure piping troubles.*

The main hydraulic circuit in this new-type press has *no piping.* All high-pressure fluid is conducted through short, direct passages drilled in the structural parts. There are no high-pressure screwed joints to loosen, no oil dripping from loosened pipe or fittings, no welded joints to break.

Now you can get the superior advantages of Elmes hydraulic power—speed, accuracy, instant response, smooth operation—*plus* matchless economies of the Pipeless principle, *all at no premium.*

Any type of Elmes Hydraulic Metal-Working Press can be supplied with the new Pipeless construction. Get the facts on this outstanding Elmes development now!

WRITE FOR PIPELESS PRESS BULLETIN 1011

Fully illustrates and describes in detail the production-increasing, cost-reducing features of these revolutionary new-type metal-working presses.

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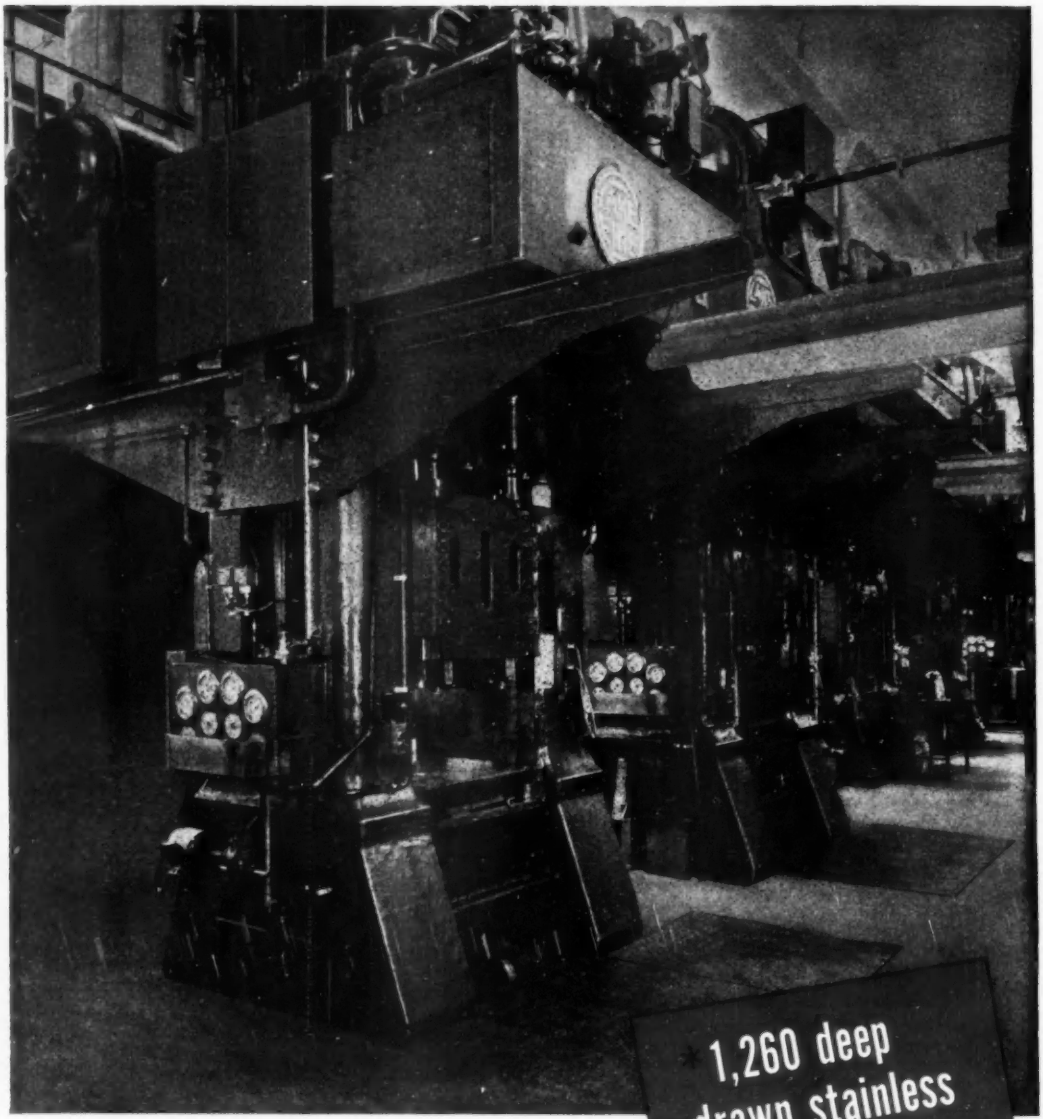
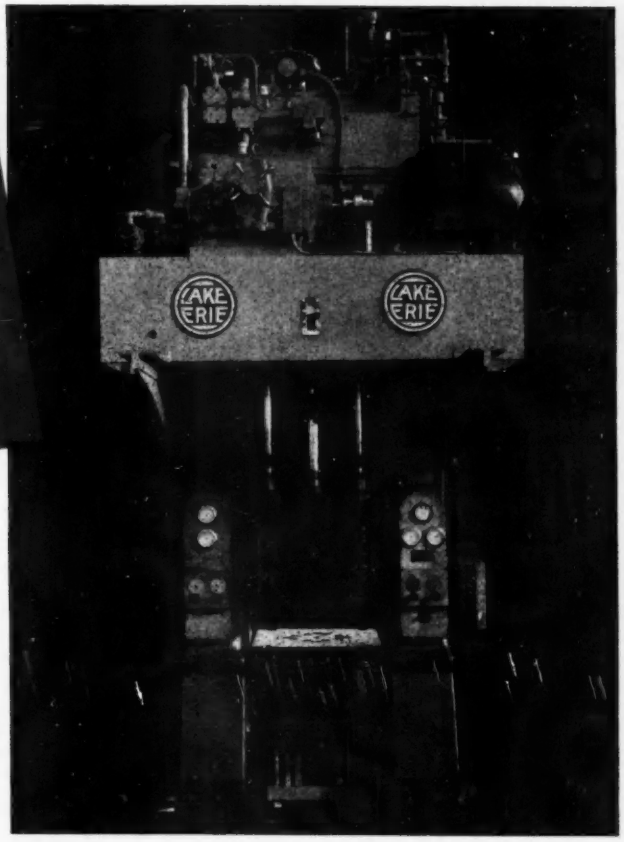


300-TON SUPER-SPEED double action Lake Erie hydraulic presses. A battery of six of these units is shown in the plant of a leading automotive equipment manufacturer. Press has 150-ton main ram, 150-ton clamp slide and 75-ton die cushion. Bed area is 40″ x 40″, draw stroke 30″ and clamping stroke 18″. With 275 hp, press produces 2000″/min. approach and return, and 460″/min. pressing to capacity. Available in a wide-range of tonnages, bed sizes, daylight openings and strokes. Descriptive literature furnished on request.

HISTORY ARE SLASHING PRODUCTION COSTS

Lake Erie designs the fastest double action hydraulic presses ever built. Leading automotive parts manufacturer replaces complete battery of outmoded presses... production soars... costs are slashed. Press dependability proved on double shift operation.



Once again Lake Erie's engineers have scored a triumph for production efficiency. Designing for speeds never before achieved, a new line of presses has been created. They are not only vastly faster than any heretofore available but have demonstrated their superior dependability in actual day-in and day-out production. If your production calls for large runs of deep drawn pieces, these super-speed presses present an opportunity to save thousands of dollars in production time. Write or phone for complete details. No obligation.

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Motor Vehicles Are Vital
to America's Defense Economy

(*Continued from page* 170)

particularly the western States where distances between population centers are great, where extensive area and relatively sparse population make public transport unfeasible, and where the speed and ready availability of the automobile are particular assets.

To illustrate, nearly 20 per cent of the total increase in the population of the United States from 1940 to 1950 is accounted for by the State of California, which in 1940 and again in 1950 had more cars in relation to population than any other State. Eight states accounted for over half the total gain in population for the country as a whole.

Another population factor influencing the growth of automobile registrations has been the development of suburban living. The 168 metropolitan areas in the United States accounted for four-fifths of the Nation's population increase from 1940 to 1950. Altogether these areas gained 14.7 million persons. Significance of this growth lies in the fact that most of it occurred in the outlying areas, which are most dependent on the automobile. Growth of the central cities totaled 5.7 million people, which was 13 per cent above 1940, whereas population in the outlying parts of these metropolitan areas increased 9 millions, or 35 per cent.

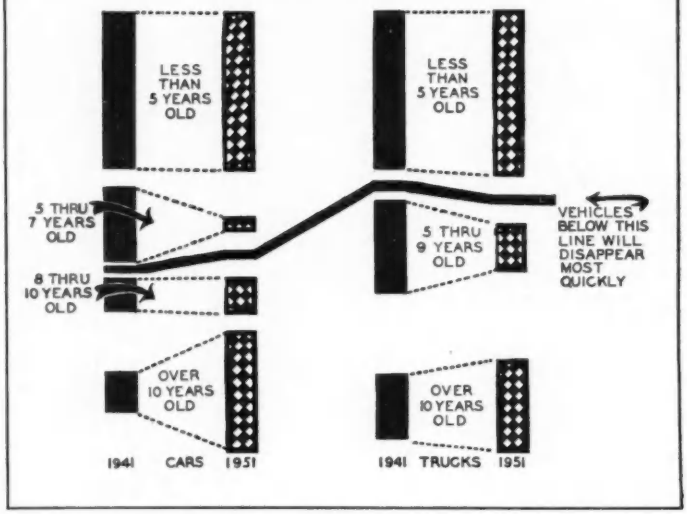
In 1941 there were only 49.1 million persons employed in the United States; and even in the mid-war years 1940 employment reached a peak of only 54.5 millions. The figure was low in 1941 because 9 million of the labor force were unemployed; and it was low in 1943 because there were 9 million in the armed forces. In 1950 the number of employed persons totaled 60 million, and an all-time employment high of 62 million persons was reached in 1951. Since the volume of daily home-to-work transportation is an important part of all passenger movements, these high employment figures have an important bearing on the demand for automobiles; and they also reflect the ability of consumers to purchase cars.

One of the population changes which has resulted in increased dependence on the automobile has been the shift in new industry location, beside defense industry, from the older established industrial areas to the West and South, and from the large cities to the smaller towns. A survey of 148 companies in various industries during 1948 revealed that both the South and the Pacific coast have accounted for a progressively greater share of new industrial plants in recent years, while the North Central States have been holding their own and the Northeast has registered some decline.

More significant than these regional shifts, however, has been the noticeable trend away from large cities. Of the new plants built prior to 1940 by the companies included in this survey, 47 per cent were in cities of over 100,000 population. Since 1940, however, this percentage has dropped to 34; and the greatest increase in popularity for industry sites was experienced by towns of less than 10,000 population. The smaller the town, the less adequate its public transporta-

(*Turn to page* 485, *please*)

Vehicles in Use Today Are Older Than in 1941


LESS THAN 5 YEARS OLD
5 THRU 7 YEARS OLD
8 THRU 10 YEARS OLD
OVER 10 YEARS OLD
1941 CARS 1951
LESS THAN 5 YEARS OLD
5 THRU 9 YEARS OLD
VEHICLES BELOW THIS LINE WILL DISAPPEAR MOST QUICKLY
OVER 10 YEARS OLD
1941 TRUCKS 1951

Today Our Motor Vehicles Are Either Young or Old

More than half our cars are eight years old or over.

Source: National Highway Users Conference and Automotive Industries *1952 Statistical Issue.*

Motor Vehicles Vital

(*Continued from page* 484)

tion, and the greater the dependence on automobiles.

A major factor in the expansion of automobile ownership has been the rising national output and the changing distribution of income. For the country as a whole, gross national product increased 52 per cent from 1940 to 1950, expressed in dollars of constant value. An additional factor increasing the financial capacity of the consumer has been the volume of wartime savings, which permitted more than half of all new car buyers in the postwar period to purchase cars for cash.

Income per capita from 1940 to 1949 has also increased, the rise for the country, as a whole, being 131 per cent. Much greater increases were registered in some areas: 192 per cent for the Southwest, 191 per cent for the Northwest, and 174 per cent for the Southeast. These changes were in contrast to the below average increases registered by New England, the Middle East, and the Far West. In these areas income per capita before the war was already the highest in the Nation, so that the changes from 1940 to 1949 amounted to a geographical redistribution which placed the average resident in the Southern and Northwestern States in an income position more comparable to that of persons in the East and Far West.

This redistribution of income may be illustrated by the trend in the proportion of the population in various income groups. In 1941, only five per cent of all spending units were receiving annual incomes of $5000 and over. By 1949, after taxes, 23 per cent were receiving this much income. Families receiving under $2000 per year, before taxes, comprised 65 per cent of the total in 1941; but in 1949, after taxes, only 36 per cent of all families were in this bracket. These facts are significant because car ownership is related closely to levels of income. In a recent study it was found that 86 per cent of all families having incomes of $5000 or more had cars and 24 per cent of these families had two or more cars. Only 46 per cent of families with less than $2000 per year were car owners.

A combination of factors then explains the expanding ownership of automobiles, but the basic factors involve population and income. How many people there are to be moved and where they live are population factors which reflect, in the main, the extent to which the automobile is necessary to provide for the travel needs of the

(*Turn to page* 486, *please*)

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Our engineers will be pleased to consult with you in the solution of your problem.

THE best AIR PURGE is CENTRI MERGE

Schmieg INDUSTRIES INC.
Engineers & Manufacturers

Motor Vehicles Vital

(*Continued from page* 485)

family. How much money people have, and the upward trends in income which have occurred in recent years, are dollar factors which make it possible to meet these travel demands.

A review of the trends in automobile ownership by State and region indicates the relative importance of these underlying growth factors in different parts of the country. The three areas of the Nation which experienced the largest percentage increases in car registrations from 1940 to 1950 were the Southeast, Southwest, and Far West. In the two Southern regions it is clear that increases in per capita income, which were far above the national average, were the primary factor in the 60 to 70 per cent increase in automobile ownership. Growth of the suburbs, too, was pronounced in these regions. In the Far West, on the other hand, per capita income in 1950 was up only slightly from the high level already enjoyed by this area in 1940. Population, however, was nearly 48 per cent above 1940, and suburban population was up 86 per cent.

It is concluded that the spectacular expansion of car ownership since the war reflects in part the long-run trend toward greater dependence on the automobile which has been witnessed over the past several decades. Population and industry have moved from the city to the suburbs, as suburban development has been made possible by the automobile; and similar migration has taken place from congested Eastern States, which were built in the pre-automobile era, to the South and West, where major development has taken place with the availability of the automobile in mind.

WHY PEOPLE USE AUTOMOBILES ON AN AVERAGE WINTER DAY[1]

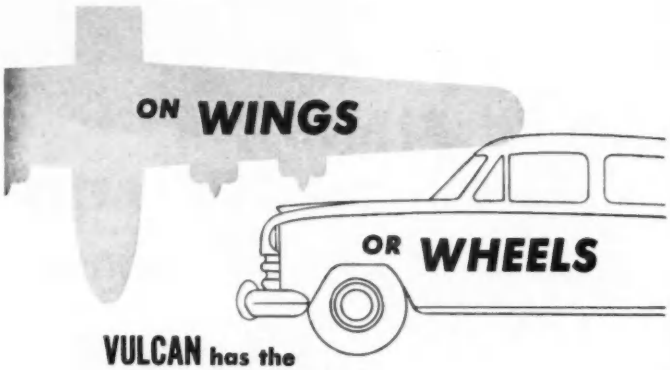
Purpose of trip	Millions of people[2]	Percent of persons using cars[2]
To or from work	22.0	37.3
Shopping	13.4	22.7
Use on the job (business)	5.5	9.3
Farming activities	1.4	2.4
Total business and shopping	42.3	71.6
Health (doctor)	2.5	4.3
Church	4.7	8.0
School	3.1	5.2
Pleasure (just for the ride)	6.8	11.5
Movies	2.5	4.3
Visiting	8.4	14.2
Sports	.9	1.5
All other purposes	7.8	13.2
Total persons using cars	59.1	62.2

[1] Alfred Politz Research, Inc.
[2] Totals do not add to 100 percent because an individual may have used car for more than one purpose.
Source: Defense Transport Administration.

These trends have been accelerated in recent years by population growth far above anticipated rates, and by reason of the fact that the construction of new residential areas and community facilities has only begun to catch up with the possibilities of decentralized living. For whereas the automobile has for some years made such decentralization possible, a decade and a half of depression and war postponed the realization of these possibilities.

In addition to these trends, a major factor in the recent growth of automobile ownership has been the growth of the financial capacity of the consumer. Car-buying capacity in recent years has been augmented first by the changing distribution of income, which has added many more families to the car-owning population. In addition, the forced savings of the war period have greatly accelerated the addition of these newcomers to the car-riding public because it has provided the

(*Turn to page* 488, *please*)



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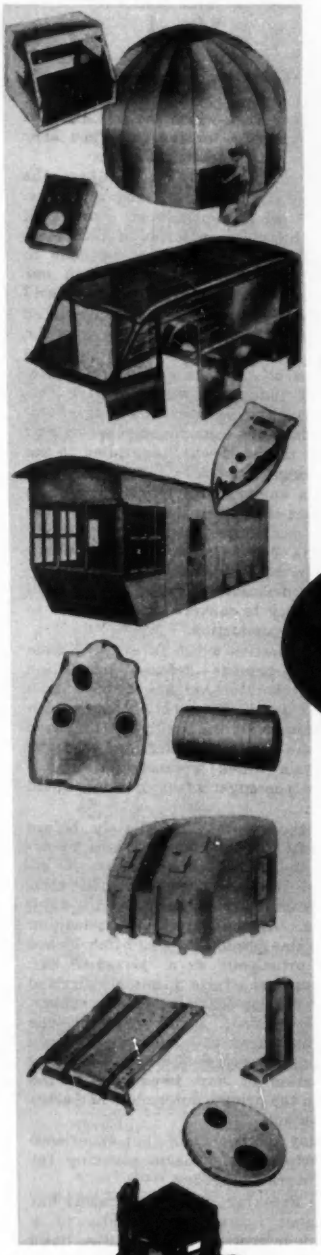

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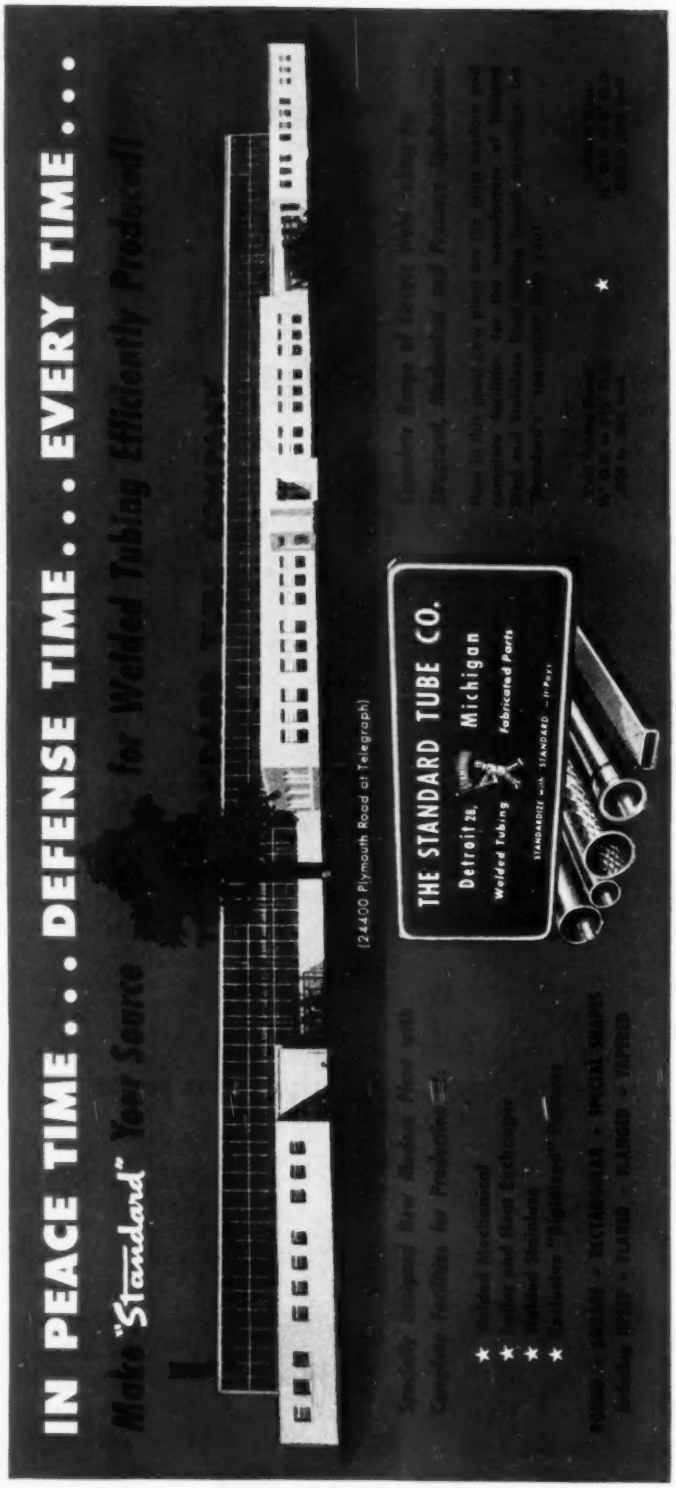
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Motor Vehicles Vital

(*Continued from page* 486)

necessary cash which the purchaser of an automobile for the first time finds to be a major financial hurdle.

We've looked briefly at where the country stands today in regard to passenger car transportation. Now, what does this mean in terms of future requirements? What must be done to make up for the deficiencies in our present personal transportation fleet?

"The automotive age has introduced a dilemma of major proportions: as the automobile has become indispensable to the operation of the economy, the automotive industries which provide this service have become increasingly vulnerable to the demands imposed by war or the threat of war," according to the Brookings report.

This vulnerability results first from the fact that these industries have the mass production capacity and experience needed to meet many important defense requirements. It is therefore highly desirable in times of national emergency to convert such facilities to military production.

The question which faces the Nation in the present defense production period, therefore, is how much it can benefit from the contributions which the automotive industries are prepared to make without risking the economic paralysis which a disruption of essential passenger transportation would entail.

In the months immediately before and after Pearl Harbor, plans to assure the continued provision of essential transportation almost completely disregarded the role of the automobile. At the highest policy-making levels the automobile was often looked upon principally as a "pleasure" car. The supreme efforts ultimately directed to the development of synthetic rubber, and provisions made through the rationing programs to keep the passenger car going indicate the later realization of how important to the Nation the private automobile had actually become.

Today the benefit of that experience can help to guide us in planning for any future emergency.

The Brookings Institution report has estimated future requirements in a civilian-defense economy on the basic premise that the "goal should be to provide the best possible supply of unused transportation in the vehicles in operation in order to assure sufficient essential transportation service if the supply of new equipment were shut off. If the opposite policy of neglecting the automobile for military production were to be followed there would be the

(*Turn to page* 490, *please*)

"Firm Basis" for leadership!

ALLIS-CHALMERS · MASSEY HARRIS · MM · IH

Ford · KENWORTH · EUCLID · Autocar

HOBART · Onan PRODUCTS · Mack · TAY HUFF · BUCYRUS ERIE · FERGUSON · P&H

CUMMINS · WAUKESHA · Caterpillar · CHRYSLER · GMC

John Deere · Jeep · COCKSHUTT FARM EQUIPMENT

MURPHY DIESEL · WISCONSIN MOTORS · HERCULES

Continental Motors Corporation · Sterling · GLEANER

NEW HOLLAND · OLIVER · CLARK

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WOOD

REO

These leading firms, and many more, have chosen Donaldson Air Cleaners to protect their engines against dust.

For the tractors, trucks and other equipment which these engines power, Donaldson Air Cleaners assure high-level performance *longer!*

This long-life protection and "follow-through" service have made the Donaldson Company the world leader in heavy-duty air cleaners.

DONALDSON COMPANY, INC.
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Donaldson

← **AIR CLEANERS**
MUFFLERS

Motor Vehicles Vital

(*Continued from page* 488)

risk that war might come when the stock of vehicles was depleted."

Brookings also points out that "if we neglect the civilian economy on the ground that war is threatened immediately, we risk the possibility of unpreparedness in the supporting civilian economy in the event that war should come at a later date."

Future requirements, therefore, are made up of those vehicles which are needed to replace old worn out cars plus additional vehicles to meet the continuing growth of our population, the Brookings report points out.

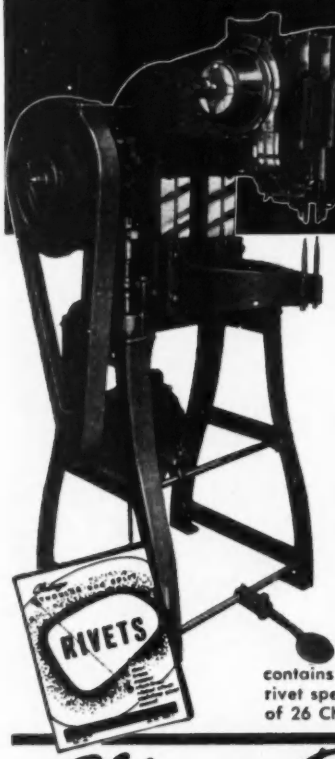
The size of the production program necessary to meet these goals will be dependent on the rate at which it is desired to replace the worn out cars ten years or older. The decision as to what this rate should be is dependent on several factors:

1. An evaluation of the amount of time remaining before war commences, if it should come.
2. Availability of materials.
3. Effect of production on the nation's economy.

The only safe assumption as to when war will come, if it comes, is that it will be within the next five years. If it comes later than that, or not at all, so much the better. But in order to assure a reasonably good passenger car pool should war come earlier, it would only be prudent to plan for the worst.

Thus, in view of the mounting evidence of the essentiality of automobiles in war or peace, it becomes shortsighted, if not downright foolhardy, to build up our military potential on the one hand and let our fleet of transport tools deteriorate on the other. It calls for the fullest possible utilization now of available plants and manpower for the production of automobiles as an integral part of our war preparedness program.

CUT COSTS . . . FASTEN "ON THE DOUBLE" with the Chicago "214" DOUBLE RIVET SETTER



The "214" automatically feeds, inserts and clinches two rivets at a time...with speed that may mean a big saving in your fastening costs.

14" throat makes large assemblies easy to handle. For tubular rivets as large as 9/64", or less in length. Quick Change Rotary Type Hoppers and Raceways permit a 5-minute changeover to rivets of different size. Adjustable anvils and riveting centers add to its versatility.

Ask us how the "214" can help you cut costs. Send a sample of your problem assembly (or blueprint) for a Free fastening analysis.

FREE CATALOG contains valuable engineering information and rivet specifications plus illustrated descriptions of 26 Chicago Automatic Rivet Setters.

Chicago Rivet & MACHINE CO.
9612 West Jackson Boulevard, Bellwood (Chicago Suburb) Illinois
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PART II

Trucks

Truck transportation accounted for 137 billion ton-miles of intercity freight service during 1951; this is a nine per cent increase over the 1950 figure of 126 billion ton-miles. In both urban and intercity service, the nation's truckers hauled 75 per cent of the total freight of all carriers. As an employer, the truck industry ranks second only to agriculture in the number of persons employed.

Because trucks enable even the smallest cities to have almost the same variety of goods to offer as do the largest, the consumer can have delivered to his

(*Turn to page* 492, *please*)

"Of all the modern forms of transportation on land which we have developed in the United States, trucking is unique. It is the only medium of transportation which can carry most items from the source of manufacture to the point of use. Aside from this basic capability, motor truck transportation is a necessary adjunct to air, rail, and water transportation.

The Armed Forces are geared to the flexibility of the motor truck. Without trucks, our Armed Forces could not exist, as we know them. The Navy depends upon truck transportation for many essential services."

Secretary of the Navy,
Dan A. Kimball

All America rushes to try . . .

SAGINAW HYDRAULIC POWER STEERING

*Now on 1952 model Cadillacs, Buicks and Oldsmobiles

A wave of enthusiasm is sweeping the nation. Saginaw hydraulic power steering is now available on passenger cars. It has been tried by America's motoring public and their praise knows no bounds. For "there is no steering like hydraulic power steering . . . and no power steering like Saginaw."

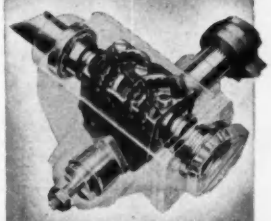
Saginaw power steering is new to the general public, but truck and bus operators have been familiar with its advantages since it was introduced in 1939 to make the steering of heavy-duty trucks and buses easier and safer. During World War II many of America's giant wheeled tanks were equipped by Saginaw—world's largest manufacturer of steering gears.

Saginaw power steering is remarkably simple in design—has fewer moving parts, fewer parts in all. "Wheel pull" is easily adjusted to the individual requirements of any car. Power helps only when help is needed. The driver has nothing to learn. Normal manual steering is automatically available in the event of hydraulic failure.

Saginaw power steering can be easily adapted to any automobile, and Saginaw engineers are available to work with car manufacturers at any time on new applications.

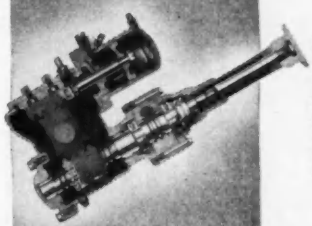
Write Saginaw Steering Gear Division of General Motors for full details.

IF IT'S EASY TO STEER . . . IT'S A SAGINAW GEAR



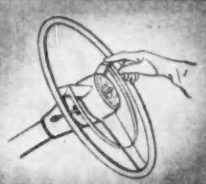
THIS . . .

Saginaw's recirculating ball steering gear provides almost frictionless operation that no other type of gear can equal. This principle has been proved on over a million automotive steering gears.



PLUS THIS . . .

Saginaw's hydraulic power steering gear gives a tremendous lift to driving ease. A hydraulic boost does the work . . . replaces driver effort with power steering.



EQUALS THIS . . .

Parking is a simple matter in a car equipped with Saginaw power steering. The smallest woman can spin the wheel of the biggest car with finger-tip ease.

** Optional equipment at extra cost*

Saginaw

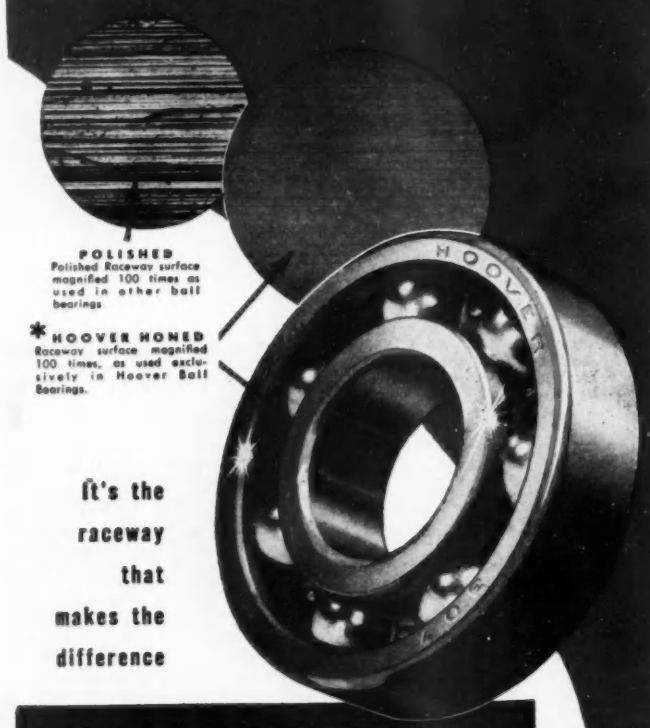
STEERING GEAR DIVISION

General Motors Corporation, Saginaw, Michigan

SSG PRODUCTS

STEERING GEAR ASSEMBLIES • STEERING LINKAGE ASSEMBLIES • PROPELLER SHAFTS • DIESEL ENGINE AND AIRCRAFT PARTS

Nothing is as smooth as a
HOOVER HONED RACEWAY*


POLISHED
Polished Raceway surface magnified 100 times as used in other ball bearings
* HOOVER HONED
Raceway surface magnified 100 times, as used exclusively in Hoover Ball Bearings.
HOOVER

It's the raceway that makes the difference

HOOVER
America's only
BALL BEARING
with Honed Raceways

90% longer life
30% greater load
Amazing Quietness

The Aristocrat of Bearings

HOOVER BALL AND BEARING CO.
ANN ARBOR, MICHIGAN

Vital Vehicles

. . . Trucks . . .

(*Continued from page* 490)

door practically anything that is made or grown in the world. About one-third of all purchases from a typical large department store are delivered by truck, as are almost 40 per cent of foods bought from the average independent grocer. Coal for heating more than 18 million dwellings is delivered by trucks.

Farmers own 2½ million trucks, and another ½ million trucks haul only farm products. Some 89 per cent of farm products and 65 per cent of the nation's livestock go to market by truck. The use of trucks serving agriculture has risen 60 per cent since 1941.

Railroads, airlines, and water carriers find highway transportation indispensable. Almost 100 per cent of all freight, mail, and express is carried to and from airports by motor vehicles. The Railway Express Agency (wholly owned by the railroads) operates 15,000 trucks, and 1400 trailers and semi-trailers.

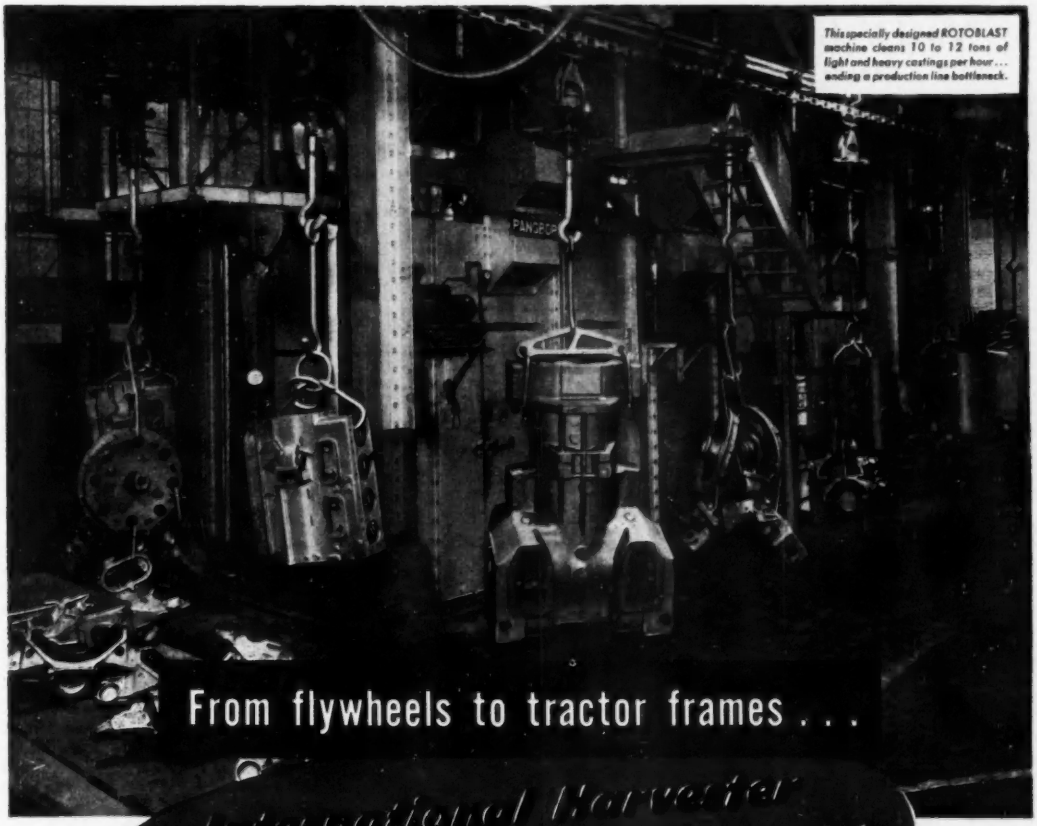
Nearly half a million new vehicles were added to the nation's fleet last year to increase the total number by 5.6 per cent from 8,238,000 to 8,700,000 and in addition enough new equipment was bought to retire more than 600,000 old units.

Similar gains by the industry in 1952 are indicated if materials and equipment are available for production, according to the American Trucking Association.

Today's fleet of 8,700,000 units represents a tremendously important addition to the freight-carrying capacity of the nation's transportation system, a capacity far above that available even in World War II when the industry proved its indispensability with a fleet numbering less than 5 million units.

When we entered World War I the United States had less than 300,000 trucks, and transport bottlenecks developed quickly. However, there were 4,800,000 trucks in use in 1941 and in World War II, the nation's trucks did a most essential defense job. In addition to performing their regular peacetime service, their shuttle service between decentralized war plants made them an indispensable part of the assembly line for the manufacture of arms and supplies. A transportation study conducted by the Michigan Highway Department during World War II revealed that 65 per cent of the incoming freight and 69 per cent of the outgoing freight of 741 war plants moved in motor trucks. They also speeded up production, and prevented plant and ship tie-ups by expediting the transportation of emergency repair parts and

(*Turn to page* 494, *please*)


This specially designed ROTOBLAST machine cleans 10 to 12 tons of light and heavy castings per hour . . . ending a production line bottleneck.
From flywheels to tractor frames . . .

International Harvester cleans 10-12 tons per hour with PANGBORN ROTOBLAST®

AT the International Harvester Company's Tractor Works Foundry, the blast rooms and tumbling mills couldn't clean tractor frames, engine blocks, transmissions and bolsters fast enough to keep pace with production. Pangborn engineers were called in . . . they studied the problem . . . and designed the special blast cleaning machine you see here. Automatically handling smaller light work and heavy pieces simultaneously, it ROTOBLASTS 10 to 12 tons per hour. No bottleneck here!

Find out how Pangborn can help you speed production and *save money too!* No matter how large or small, light or heavy your castings, there's a modern, economical, efficient ROTOBLAST Barrel, Room, Table or Table-Room to solve your blast cleaning problem. For the complete facts, write today for Bulletin 214. Address: PANGBORN CORP., 3900 Pangborn Blvd., Hagerstown, Maryland.

OVER 28,000 PANGBORN MACHINES SERVING INDUSTRY

Look to Pangborn for the latest developments in Blast Cleaning and Dust Control equipment

Pangborn

BLAST CLEANS CHEAPER
with the right equipment for every job

Vital Vehicles

. . . Trucks . . .

(*Continued from page* 492)

supplies. They prevented a breakdown of land transportation service, such as occurred in World War I, by relieving traffic congestion in the terminal areas.

Although their potential capacity has been doubled since World War II, there is no surplus capacity in our trucking facilities. Going back to November, 1950, the Interstate Commerce Commission said, in its annual report: "Because of the international situation and the program of substantially enlarging our national defense facilities, the adequacy of motor-transportation facilities as reflected in the last report has materially changed. Generally, motor carriers are now transporting quantities of traffic which almost absorb their capacity and in some areas the available facilities have been unable to move all traffic offered without some delays. Present indications are that as the defense program progresses, the amount of traffic which will require motor transportation will increase."

Meanwhile, demands for truck service have forced owners to keep vehicles in use beyond the normal retirement age. Average age of trucks is more than two years greater than before World War II, and approximately 1 million trucks are 14 years old or older. As mentioned earlier, the increase in the number of vehicles made during 1951 was less than six per cent over 1950.

The ability of trucks to perform under adverse conditions was well demonstrated last year during the floods in Kansas and Missouri. While other transportation facilities except automobiles and buses were disrupted for weeks, the trucking industry evacuated thousands of persons and their belongings, kept many communities supplied with food and other essentials, and still provided freight service to cities outside the flood zone.

A striking example of the part that trucks play in building America's war machines is found in the Cadillac Cleveland Tank Plant. Of the materials and parts provided by 2000 suppliers for the Walker Bulldog tank, 80 per cent arrive by truck. In the aircraft manufacturing field, trucks are practically indispensable. At the Glenn L. Martin Co., for example, trucks handle 75 per cent of all inbound tonnage and 60 per cent of the outbound shipping.

In any defense program, provision should be made for the production of a reserve of transportation facilities. An all-out war would place an added burden on truck transportation because of military movements and because of a reduction in the amount of goods that could be carried by coastwise and intercoastal shipping. Although railroads are less vulnerable to enemy attack than ships, they are more susceptible to damage than trucks. Any reduction in other facilities would put an added burden on truck transportation which has proved itself to be absolutely indispensable in wartime as well as in peacetime.

PART III

Buses, Tractors and Roads

In starting, it might be well to define transit and intercity bus operation. Transit is the generally accepted designation for public transportation within an urban or metropolitan area. Intercity operators are those engaged primarily in providing passenger transportation between communities separated by open country or between rural points along such routes between communities, as distinguished from local transit operations.

Growth of the intercity bus industry has been such that it now covers well

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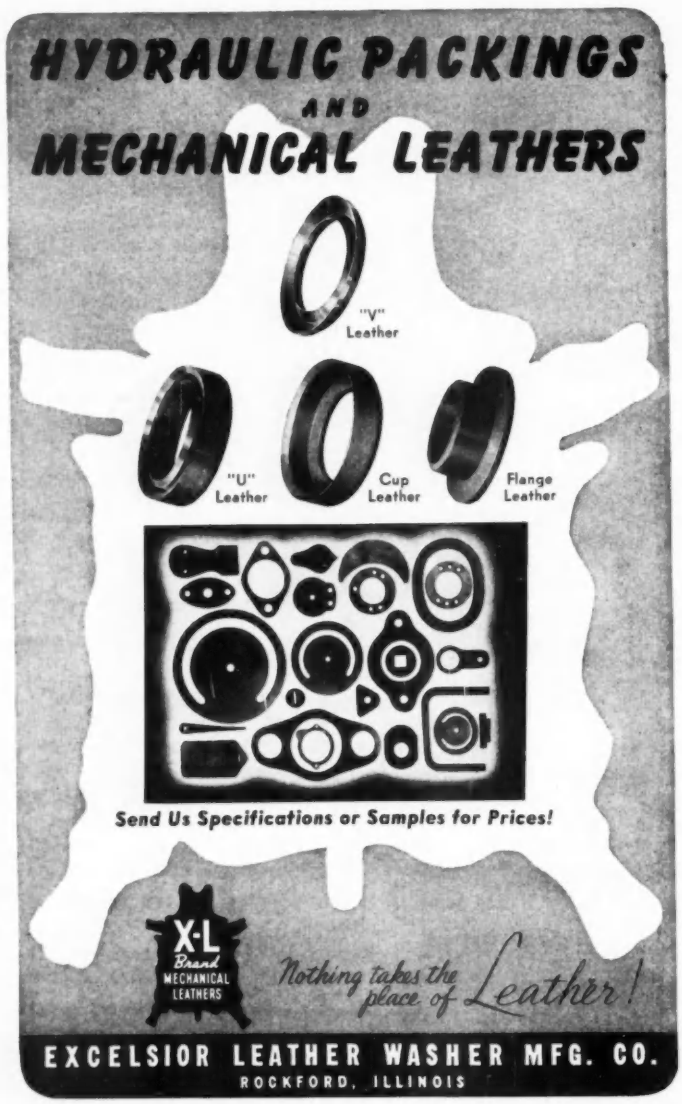
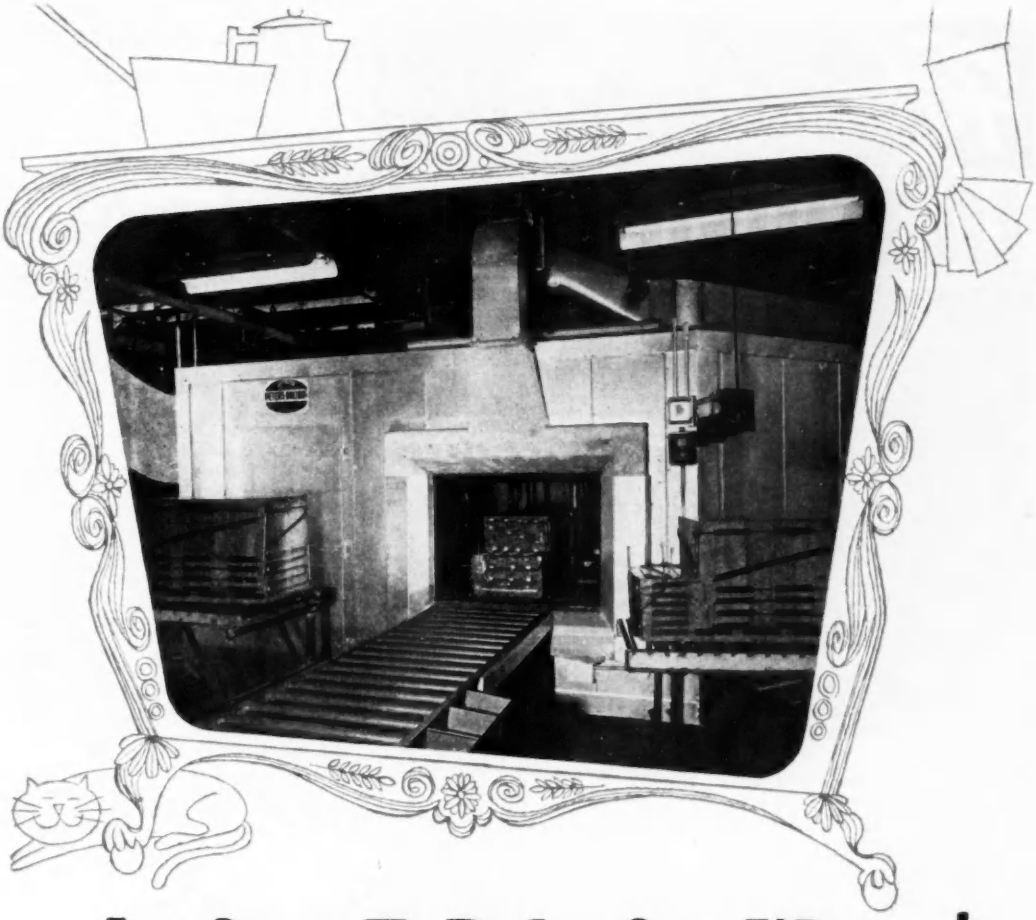




An Oven To Bake Out Water!

WATER in the coils of a refrigerating system is as harmful as water in the carburetor of a car. So Kelvinator runs a special gas-fired oven to dehydrate its refrigerating units at the Detroit plant.

The oven shown here reduces the moisture in tubing of coils and evaporators to an absolute minimum—0.03 grams per coil.

Inside the 19 foot square gas oven is a revolving table which rotates to carry the units through the dehydrating cycle. Coils of the units are connected to a compressed air source, and air at the rate of .6 cubic feet a minute circulates through the coil while it is in the oven.

Oven temperature is maintained accurately and automatically at 275°, with a plus or minus variation of only 5° The dehydrating process requires about ten minutes. 36 of the units shown here (for freezer chests, beverage coolers, etc.) are handled each hour. When the oven is processing evaporators used in domestic refrigerators the rate steps up to 180 per hour.

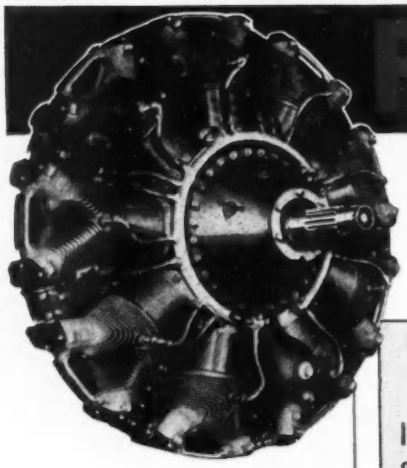
17930 RYAN ROAD
DETROIT 12,
MICHIGAN

peters-dalton
INCORPORATED

For DEPENDABLE PERFORMANCE

CONTINENTAL...

R-975



AIR-COOLED RADIAL

OF INTEREST to all segments of the aircraft industry is the fact that the Continental R-975, as redesigned for helicopter use, is now in production at C.A.E., for such craft as the Piasecki HUP I and HUP II and the Kaman HOK.

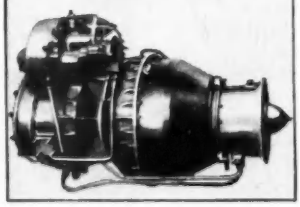
The completeness with which this air-cooled radial, rated at 525 h.p., has met the helicopter's high performance standards, suggests its choice for other exacting applications as well. It has special significance for manufacturers of conventional planes.

It offers them a power plant with an *extra margin of stamina*,—a margin proved by performance under conditions far more severe than are imposed on the engine of an airplane of fixed-wing type.

ON THE WAY...

GAS TURBINE POWER FOR INTERMEDIATE AIRCRAFT

C.A.E. is planning production of the Continental-Turbomeca Family of gas turbines. These advanced power plants comprise four basic types—jet power, shaft power, ducted fan and air compressor—and range from 200 to 1,000 h.p. Tests forecast their wide utility, not only in civilian and military aircraft of medium power, but in numerous other applications, some obvious and others unconventional. We invite inquiries from manufacturers or individuals having specific uses in mind.



There are employment opportunities for engineers and others desiring to make a career in the field of small turbines for commercial and military use. Write giving your background and the type of work desired.

CONTINENTAL AVIATION & ENGINEERING CORPORATION

1500 ALGONQUIN AVE., DETROIT 14, MICHIGAN

SUBSIDIARY OF CONTINENTAL MOTORS CORPORATION

Vital Vehicles

. . . *Buses, Tractors and Roads* . . .

(*Continued from page* 494)

over 400,000 route miles and serves every principal city and town in the United States, including thousands of communities which have no other form of transportation. With increasing decentralization of both defense and civilian industry, still more areas will be dependent upon this means of getting workers to and from their jobs.

During 1951, approximately 57,600 transit buses, traveling a total of 1.95 billion miles, carried a total of 9.24 billion passengers—which is more than half of the total passengers carried by the entire transit industry, including subway and elevated railways, trolley coaches, and surface railways. Back in 1940, a year of preparedness, transit buses carried over 4.2 billion riders. As industrial employment increased to meet the military demands during World War II, transit bus riding increased to over 10 billion riders in 1945. Thus, the necessities of war more than doubled the transit bus operators' part in transporting people to and from their jobs and other important assignments.

There are approximately 224,000 buses in the United States, about two thirds of which are privately owned and one third publicly owned.

Reasonable operating economy and dependability usually require replacement of motor buses after 10 years of service. According to recent estimates, more than 30 per cent of the motor buses in use have passed the normal retirement age, and, of course, it is much more expensive in manpower and materials to keep an old bus operating than a new one.

Although the number of transit passengers carried decreased during 1951, a reversal of this trend is now shown in many cities. With the full impact of the armament production program expected this year, an upswing in bus riding is foreseen. Surveys by the American Transit Association indicate a need for 6200 new buses for 1952. In 1951, 4500 new buses were added to the transit fleet; this was about a 70 per cent increase over 1950.

There has been a trend in the industry for years toward the substitution of buses on many routes served by street cars. With a continuation of this trend, more vehicles will be necessary for the establishment of new bus routes.

Output of a sufficient number of buses in 1952 will keep open the production lines for these vehicles. Otherwise, conversion of these facilities to other work will make them unavailable if demands on the bus industry increase. In addition, supplies for the maintenance and repair of buses must be available in sufficient quantity to

(*Turn to page* 498, *please*)

COMPETITION KEEN?

Can't find ways to cut production time?

THEN YOU HAVEN'T USED

Reliance "threadcutting"

(and cost cutting)

Springtites and Sems!

Reliance "thread-cutting" Springtites and Sems can answer both of these problems. First, by giving you tighter and longer-lived assemblies (improved product quality) and second, by cutting out costly old-fashioned tapping operations that add hours to factory costs. Write today for samples and let Reliance "thread-cutting" Springtites and Sems reduce your production costs.

2 Simple Operations

FOR ALL MATERIALS

TYPE 1 FOR STEEL
Ideal for sheet steels and stainless. Standard machine screw threads plus Reliance lock washer for stronger, tighter fastenings.

TYPE 23 FOR DIE CASTINGS
Specially designed for die castings and metals that powder when driven. Standard machine screw thread and Reliance lock washer for exceptional tightness.

TYPE 25
For every type of Plastics assembly, Type 25 features spaced threads to keep stripping to a minimum.

Write today for your free copy of Bulletin S-49A that describes Reliance "thread-cutting" Springtites and Sems

Reliance "Thread-Cutting" Springtites and Sems

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Motor Vehicles Vital

. . . Buses, Tractors and Roads . . .

(*Continued from page* 496)

TRANSIT BUS REPLACEMENT PARTS REQUIREMENTS FOR 1952

Part	Dollar Value*
Axles, front	$ 919,539
Axles, rear	2,477,426
Body, chassis and frame	4,256,690
Brake system	5,368,408
Clutch	2,399,510
Cooling system	1,838,840
Electrical equipment	
a. Low voltage & ignition (Exc. batteries)	3,218,744
b. Propulsion motor and generator comp.	(a) 90,586
c. Propulsion motor controls	(a) 17,926
d. Batteries	1,763,903
Engine	12,004,592
Frame springs & mountings	2,378,894
Fuel and exhaust system	1,513,024
Steering	540,214
Tires & Tubes	16,133,072
Transmission	6,235,178
Propeller shafts	650,637
Wheels, hubs and bearings (Except tires)	1,285,789
Special equipment	1,668,346
Total replacement parts	$64,761,318

*All dollar values are based on 1950 unit costs.
(a) Electric drive motor buses.
Source: American Transit Association estimates.

provide for their safe and efficient operation, and to prevent early deterioration.

From the time a bus is ordered, seven to eight months must elapse until it is built and delivered. For this reason, allocation of necessary materials for a period of only a month or two in advance would make bus manufacture extremely difficult and inefficient.

A highly essential public service at all times, efficient bus transportation is an absolute necessity in the event of a war. Buses, like trucks, are less vulnerable to enemy attack than ships or railroads. Not being confined to definite routes as are the railroads, their movements are more difficult to anticipate, and they are free at all times to detour dangerous areas. Routing of about 95 per cent of all selectees by bus at the present time illustrates the important part that buses would play in the movement of troops in an all-out war. Military movements by bus increased 250 per cent in 1951 over 1950.

In a real emergency, manpower and its most efficient utilization would be the principal problem of this country. The highest possible production cannot be attained simply by allocating the essential materials; the manpower must be available where and when required. During World War II, a substantial percentage of the nearly 4 billion passengers carried by intercity buses were workers going to and from their jobs in defense plants.

Because it has shown itself to be such an indispensable part of our national transportation system, the bus industry must have the consideration it deserves in the provision of all essential materials and manpower so that it can continue to serve the Nation in the future as it has in the past.

Tractors

With the increasing use of tractors, of both the wheel and track-laying types, for construction, road building, mining, industrial facilities, and farming, much manpower has been released to other essential industries. Tractor production has been on the upswing since World War II, and with this increased output and usage the tractors are providing more materials, fuel and power for plants of all kinds. The farmer has come to depend more and more upon tractors for plowing, planting, and seeding, as well as clearing his land.

Numbers of most power machines in farm use are now at record high levels. Preliminary estimates for Jan. 1, 1951, show that there were 3,940,000 tractors of all types on farms. This is about 1.5 million more than in 1945.

REVENUE VEHICLE MILES OPERATED BY URBAN BUSES 1936-1952

Year	Millions of Miles
1936	864.2
1937	957.0
1938	986.4
1939	1,047.4
1940	1,194.5
1941	1,313.0
1942	1,612.0
1943	1,693.0
1944	1,713.3
1945	1,722.3
1946	1,807.2
1947	1,885.7
1948	1,975.7
1949	1,968.2
1950	1,895.4
*1951	1,952.2
*1952	2,030.7

*Preliminary estimate.

Source of Data: 1936 to 1950 inclusive from American Transit Association; remaining figures, ATA estimates.

Preliminary figures from the 1950 Agricultural Census and other reports provide a basis for estimating machine numbers for 1951, and for revising estimates of recent years.

From 1948 to 1951, tractor numbers increased by about 960,000, or an average annual increase of about 320,000 units. This was the largest increase so far reported for any three-year period.

Farm motor trucks, estimated at 2,280,000 for 1951, exceeds the 1945 number by about 790,000 units.

During 1951, approximately 600,000 wheel and tracklaying tractors were produced, exclusive of garden type tractors. About 92 per cent of these were wheel type units including contractors' two- and four-wheel, off-the-highway type. Output of the two types of tractors in 1941 was slightly more than 350,000.

MOTOR VEHICLES ON U. S. FARMS JANUARY 1, 1910-1951

All Figures Below Expressed in Terms of Thousands

Year	Tractors: Wheel including home-made	Tractors: Crawler	Tractors: Garden	Tractors: Total	Autos	Motor Trucks
1910	...	...	...	1	50	
1920	...	...	...	246	2,146	139
1930	...	...	...	920	4,135	900
1940	...	...	...	1,545	4,144	1,047
1941	...	...	...	1,575	4,330	1,095
1942	...	...	...	1,885	4,670	1,160
1943	...	...	...	2,100	4,350	1,280
1944	...	...	...	2,215	4,185	1,385
1945	2,255	99	68	2,422	4,148	1,490
1946	2,374	106	80	2,560	4,260	1,550
1947	2,500	113	122	2,735	4,350	1,700
1948	2,700	121	159	2,980	4,225	1,900
1949	2,980	133	202	3,315	4,290	2,065
1950	3,259	144	216	3,619	4,208	2,209
1951	3,531	154	255	3,940	4,210	2,280

Source: Bureau of the Census.

The roads upon which our motor vehicles run are built with the aid of tractors. These versatile machines handle most of the difficult jobs with far less manpower than would be required by other methods.

Without tractors, the expense of building airfields would be almost prohibitive. They clear the land, fill in low spots, push aside such obstructions as boulders, haul fill material, and do the leveling jobs. Not only are more airfields required at the present time; growth in the size of planes is causing a rush to increase the size of existing fields.

Before construction of new production facilities can be started, tractors must clear the land on which the plants will be built. More factories and the expanded output of aluminum add to the demand for electricity. Tractors play a most important part in the building of dams to provide a source of electric power.

Lumbering is another industry which is finding wide use for tractors. The big machines haul logs from forests

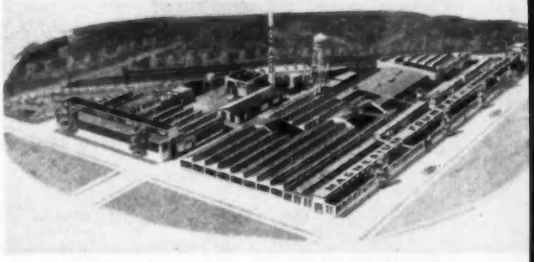
(*Turn to page* 500, *please*)

6 GREAT Howard Foundry Plants

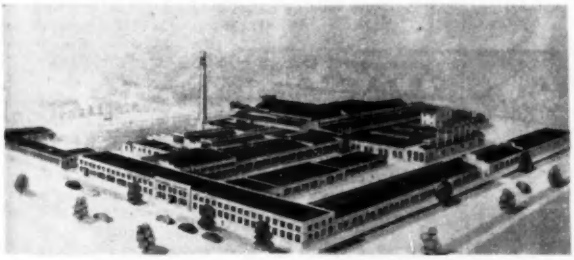
FOR YOUR FERROUS AND NON-FERROUS REQUIREMENTS

There is much of tomorrow's better metal products in what Howard is doing today. Production of improved and sounder castings for all industry is current in six plants, with tooling and research at their ultimate development. The story of teamwork and achievement is detailed in Howard's 72-page book, "Castings by Howard." We'd like to send you a copy. It's certain to help you.

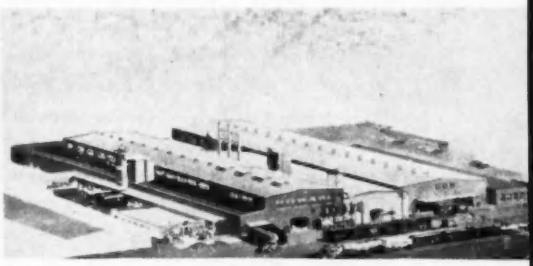
General Offices, Aluminum & Brass Division, Machine Division, 1700 North Kostner Ave., Chicago, Ill.



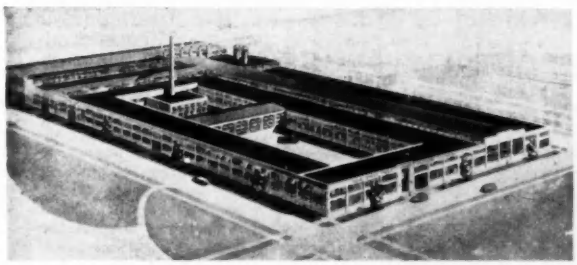
Magnesium Casting Division and Titanium Research, 1801 English Ave., Indianapolis, Indiana.



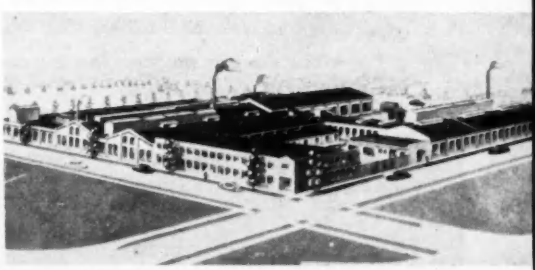
Magnesium Division, General Development and Research Laboratories, Headquarters of Pattern Div., 4900 West Bloomingdale Ave., Chicago, Ill.



Pacific Coast Division, Precision Steel & Stainless Steel Castings, 1860 East Gage Ave., Los Angeles 1, California.



Semi-Steel Division, Controlled Alloy Iron Castings, 901 North Kilpatrick Ave., Chicago, Ill.



Bronze Division, Aurora, Illinois.

HOWARD

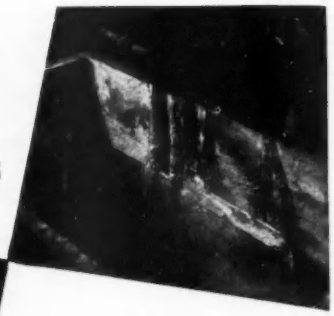
FOUNDRY COMPANY

1704 NORTH KOSTNER AVENUE • CHICAGO 39, ILLINOIS

We like to be known by the customers we keep.

PLATECOILS
(REPLACE PIPE COILS)

heat this parkerizing tank



WITHOUT DOWNTIME for CLEANING or REPAIRS

at the Lycoming Spencer Division
Avco Corp., Williamsport, Pa.

The only time this Platecoil was removed in over a year at Lycoming Spencer was to take its picture. The single 22" x 23" Platecoil has heated a 100-gallon Parkerizing tank, in daily use, *without downtime.* Built of Electro-polished Stainless Steel, the Platecoil has required *no cleaning or repairs.* Any deposit that builds up on the coil during the course of operation is "shocked off" when the steam pressure is dropped in the coil.

Notice how easy it is to lift the Platecoil out of the tank when the time comes that it does have to be cleaned, repaired or replaced. There are just two connections to loosen and both are outside the solution. The Platecoil merely is lifted out of the tank and replaced with little or no delay in production.

Platecoils have other advantages, too. They have about twice the heating area for a given space than can be obtained with pipe coils. Thus smaller size Platecoils can be used to save initial cost, tank space and handling time.

Learn how you can cut your heat transfer costs by sending today for Platecoil bulletin No. 74.

PLATECOIL gives you these ADVANTAGES

- Cleaned and Repaired Without Dumping Tank Solution
- Greater BTU Transfer Per Unit Area
- Weighs Only Half as Much as Pipe Coil
- No Threaded Joints in Tank
- Increased Tank Capacity
- Fast, Easy Installation
- Easy to Clean

PLATECOIL
Division
KOLD-HOLD MFG. CO.
LANSING 4, MICHIGAN

Vital Vehicles

. . . Tractors . . . Roads . . .

(*Continued from page* 498)

where no other vehicles would be suitable because of the heavy loads and lack of roads.

Early in 1944 tractor plants expanded their production facilities to meet the needs of the Armed Services and the civilian population of the United States and allies. The multitudinous jobs which are performed by the Nation's tractors have made them very essential in preparing our defense setup.

Roads

The combined mileage of all roads and streets in the country is approximately 3,323,000 miles. Of these, 350,000 miles are main rural highway, 214,000 miles are secondary and farm-to-market roads, 2,373,000 miles are county and township local rural roads, and 316,000 miles are city streets and highways. There are 70,000 miles of roads in Federal reservations. Outside of the cities, 86 per cent of travel is on 23 per cent of the road mileage; in cities 80 per cent is on only 12 per cent of the street mileage.

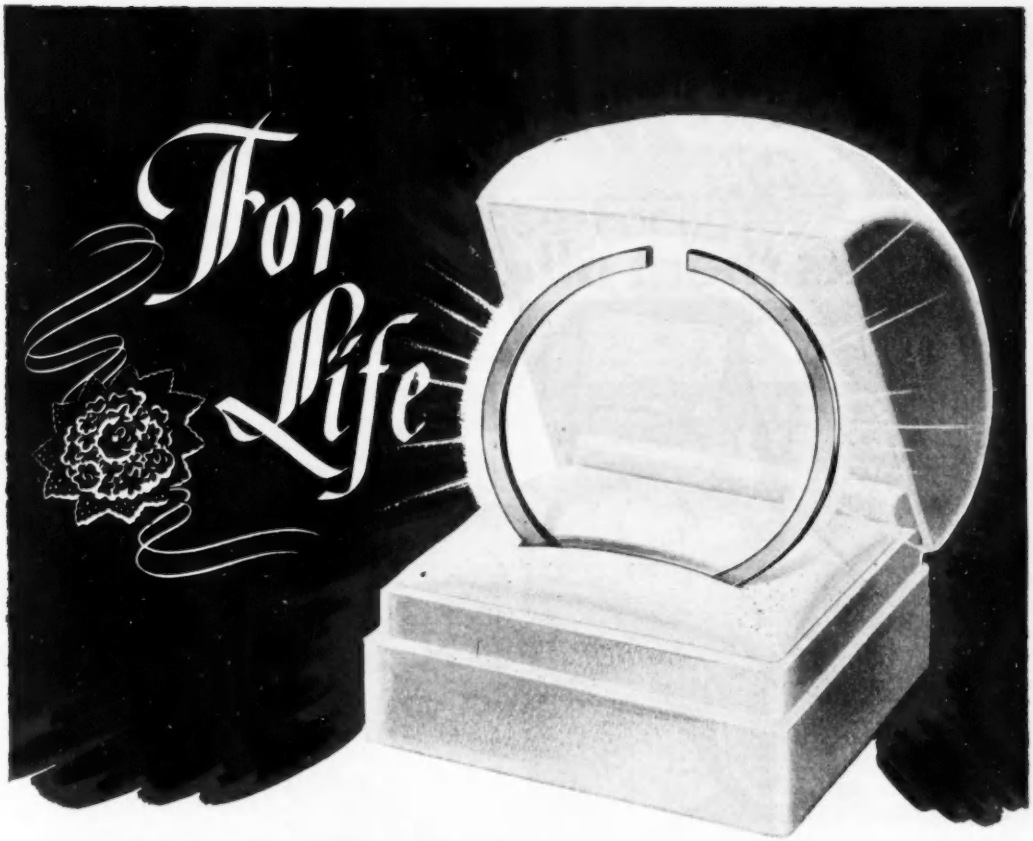
With an estimated total of almost 500 billion vehicle miles traveled during 1951, highways are not adequate to meet the increasing demands being made upon them at many points. During World War II the construction of new roads and repairs to existing ones was discontinued because the necessary materials and manpower were not available. Since that time new construction and modernization have lagged behind requirements, and this condition will no doubt become worse with the rising demands of our defense program and increasing traffic.

Maintaining a highway system is not a thing to be turned off or on like a water faucet, according to Arthur M. Hill, president of the National Association of Motor Bus Operators. When it has been stopped the essential manpower disappears. Plans and specifications must be changed and contracts extended, renegotiated or revoked. Resumption of effort is always accompanied by a dangerous time lag.

While some campaigns in history may have succeeded without it, no major war was ever won without a strong civilian economy to support the military operations. Our civilian economy is geared to and dependent upon our system of transportation, in which highway transport has come to play a dominant part.

From the moment an all-our war materializes, the probability of securing needed materials and manpower for roads will vanish. If we are to have a

(*Turn to page* 503, *please*)



Pedrick CHROME Rings

"Obey" Engineers' Demands

Today, the highest standards in CHROME piston ring performance are being met by PEDRICK chrome rings. This is a logical result of our long experience in chrome-plating, our production facilities, the traditional craftsmanship of our workers, the special alloys we use, and the recognized excellence of the Pedrick Heat-Shaping Process in getting correct distribution of radial pressures.

Yes, for CHROME rings that will eliminate scuffing and deliver 2 to 4 times longer life, and more, come to headquarters . . . come to PEDRICK. Our engineers are at your service.

Write Wilkening Manufacturing Co., Philadelphia 42, Pa.

Pedrick

"HEAT-SHAPED"

PISTON RINGS

FOR 32 YEARS, SUPPLIER OF PISTON RINGS TO LEADING VEHICLE AND ENGINE MANUFACTURERS

MARKEM®

marks them all

FROM ARTILLERY SHELLS TO MEDICAL AMPULES

MASTERS OF MARKING — Since 1911

Markem methods, machines, type and inks have been marking the products of industry for forty years. Markem machines can mark up to many thousands of pieces per hour. They make clear, durable imprints on flat, curved or irregular surfaces of paint, paper, wood, glass, metal, leather, plastic, rubber, fabric, composition and pressure sensitive tapes. No special skill is needed for their operation. Legend and color of imprint may be quickly and easily changed.

MAKE *YOUR* MARK WITH MARKEM

When your products need marking for Identification, Control or Market — ask Markem. Submit your problem, together with a sample of the item to be marked. Markem Machine Company, Keene 8, New Hampshire.

MARKEM BETTER MARKING SINCE 1911

ELCO SCREWS

Elco Screws are Good Screws

ELCO TOOL AND SCREW CORPORATION

1914 BROADWAY • ROCKFORD, ILLINOIS

strong supporting economy and an adequate highway transportation system, the road-net must be brought up to reasonable standards before the blow falls. Roads and bridges cannot be built overnight.

As for the immediate problem, we can be eternally grateful for this period of preparation before being plunged into an all-out war. Should such a war develop, it is difficult to conceive the magnitude of the burden our roads will be required to bear. Unless they are in far better condition than now, they will fail when the chips are down. It will then be too late.

We can ill afford to jeopardize our national security in another world war with our road system in its present condition. Nor should our economy be subjected to the increasing waste of existing facilities and the loss of vehicle and man-hours caused by traffic congestion and delays.

New Defense Facilities

SUPPLEMENTING the list of Certificates of Necessity issued up to November 13 authorizing new or expanded defense plant facilities for the manufacture of automotive and aviation war goods which were published in the December 15 issue, page 92, of AUTOMOTIVE INDUSTRIES, the following additional certificates were announced by the Defense Production Administration between November 13 and January 25.

Included in this latest tabulation, 6016 new or expanded defense facilities of all types have been authorized for rapid tax write-off, the total amount eligible for amortization being $13,464,717,000. These figures are exclusive of cases that are up for later review but included in this list — in these cases no dollar amount is listed. The figure appearing in parentheses is the percentage authorized for actual fast tax write-off.

— A —

Acme Industrial Co., Chicago, Ill.
Aircraft parts—$71,836 (80)

S. G. Adams Co., St. Louis, Mo.
Aircraft parts—$15,000 (80)

Aeroquip Corp., Jackson, Mich.
Hydraulic fuses—$44,760 (65)
Aircraft parts—$189,890 (65)

Aero-Coupling Corp., Burbank, Calif.
Aircraft parts—$15,294 (65)

Aerojet Engineering Corp., Azusa, Calif.
Aircraft parts—$236,400 (65)

Aetna Steel Products Corp., Bridgeport, Conn.
Spherical bearings for aircraft—$32,873 (65)

Aircraft-Marine Products, Inc., Cumberland Co., Pa.
Aircraft and electronic equipment—$160,137 (50)

Aircraft Precision Products, Inc., Detroit, Mich.
Aircraft parts—$18,344 (80)

Air-Parts, Inc., Glendale, Calif.
Aircraft parts—$53,488 (70)

AiResearch Mfg. Co., Los Angeles, Calif.
Aircraft engine parts—$77,834 (65)

AiResearch Mfg. Co., Phoenix, Ariz.
Aircraft parts—$2,235,626 (65)

Alba Engineering Co., Inc., Los Angeles, Calif.
Aircraft components—$114,366 (70)

Alliance-Western Co., Los Angeles, Calif.
Aircraft parts—$102,250 (80)

Allied Products Corp., Hillsdale, Mich.
Aircraft parts—$394,265 (65)

Allis-Chalmers Mfg. Co., Springfield, Ill.
Ordnance—$2,115,000 (25)
856,000 (50)

All American Airways, Inc., Wilmington, Del.
Aircraft parts—$29,373 (75)

Aluminum Co. of America, Cleveland, O.
Aluminum forgings for aircraft — $660,000 (65)

Aluminum forgings for aircraft—$1,120,500 (65)

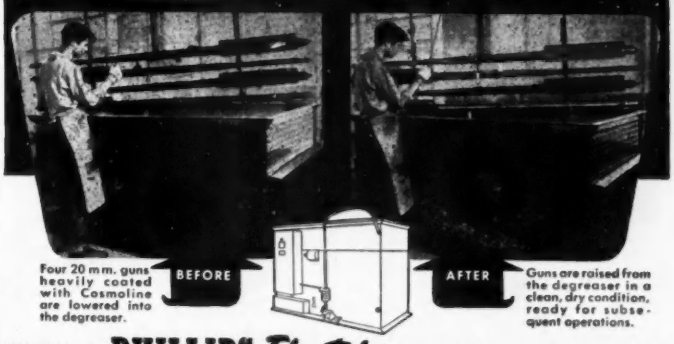
Aluminum Co. of America, Massena, N. Y.
Aircraft parts—$660,300 (65)

Aluminum Co. of America, Vernon, Calif.
Aircraft parts—$673,500 (65)

American Airlines, Inc., New York, N. Y.
Aircraft—$2,604,554 (80)

(*Turn to page 505, please*)

COSMOLINE COATED GUN
COMPLETELY DEGREASED
IN LESS THAN 4 MINUTES



Four 20 m m. guns heavily coated with Cosmoline are lowered into the degreaser.

Guns are raised from the degreaser in a clean, dry condition, ready for subsequent operations.

WITH A PHILLIPS *Electric* VAPOR DEGREASER

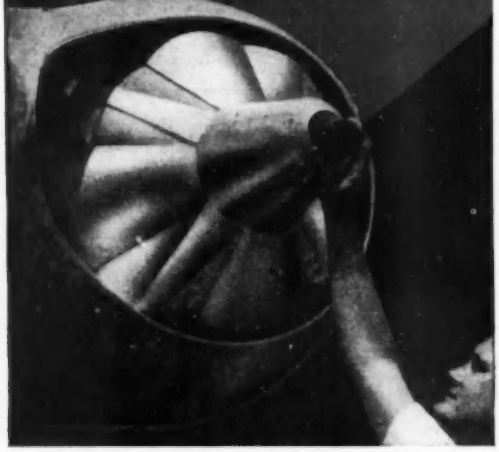
Here was a really tough metal cleaning problem. Cline Electric Mfg. Company, Chicago, had to remove Cosmoline from a large quantity of 20 mm. guns before going ahead with modification operations on the guns. Estimating that other cleaning methods would take about 2 hours per gun, Cline purchased a Phillips electric batch-type degreaser to handle the job. As a result sixteen guns are being degreased per hour *at a savings of 85% on cleaning costs per gun.* Cline reports that the degreasing operation thoroughly prepares each gun for subsequent operations.

Here is another instance of how Phillips degreasers cut manufacturing costs through faster, more thorough, more economical metal cleaning. If you have a degreasing problem, check with Phillips. Our engineers will be glad to recommend the right machine for your job from Phillips' complete line of standard degreasers.

Phillips
3465 TOUHY AVENUE • CHICAGO 45, ILLINOIS
MANUFACTURING COMPANY
ENGINEERED METAL CLEANING EQUIPMENT

BATCH TYPE DEGREASERS | COMBINATION DEGREASERS | "ROTOMATIC" DEGREASERS | CONVEYOR TYPE DEGREASERS | "TORRENT" WASHERS

new Cohrlastic heating units



Jet engine pod doors on B-36 heavy bombers now electrically heated for positive opening and closing

This brand new electric heating pad is the work of Connecticut Hard Rubber engineers in cooperation with designers at Consolidated Vultee. It is suggestive of the new ways of applying heat to many parts of a plane operating in high altitudes.

The pad consists of resistance ribbon wire embedded in a specially developed silicone coated fiberglas with high dielectric strength (in excess of 2500 volts). This is sandwiched between thin aluminum sheets that attach to the door assembly. The material is thin and light weight, not over .050" in thickness. It remains flexible and functions at temperatures as low as −100° and up to +500°F. Normal heat output at 400°F is 4 watts per square inch. Elements can be made with wattage ratings up to 15 watts psi operating on voltage up 250 volts AC or DC.

Other aircraft uses include heaters for air-intake throats, helicopter blades, antenna masts, oil vent lines, in-flight refueling receptacles, camera doors, waste lines, actuators. Elements can be fabricated into a variety of shapes with single or compound curvatures. If you will outline your problem, we will carry on from there.

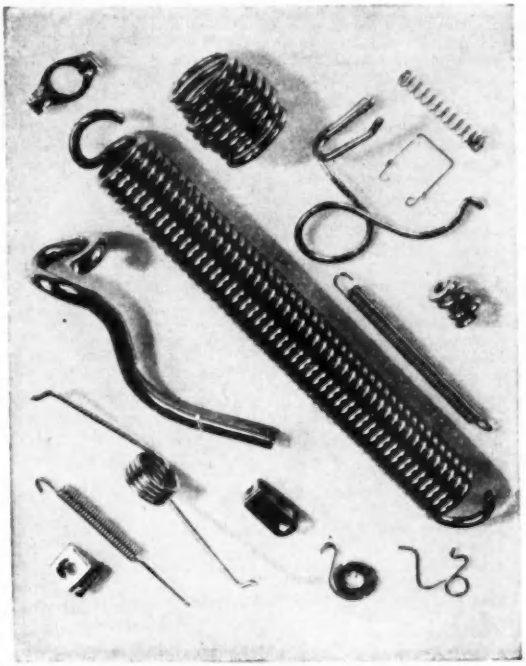
THE CONNECTICUT HARD RUBBER CO.
420 East Street, New Haven, Conn.

Cohrlastic

SILICONE FABRICS • AIRCRAFT PARTS • RESEARCH AND DEVELOPMENT

• Expanded facilities, improved material supplies allow us to promise your spring problems will get our immediate attention. Prints submitted for quotation will be promptly processed—inquiries will be answered fully. Ask now, we think we make better springs, faster and our prices are right!

Producing Clutch Pressure Springs
. . . Clutch Dampener Plate Springs



The U. S. STEEL WIRE SPRING Co.
7800 FINNEY AVE. • MICHIGAN 1-6315
CLEVELAND 5, OHIO

Defense Facilities

(*Continued from page 503*)

American Airmotive Corp., Miami, Fla.
Overhaul of aircraft engines—$4,900 (65)

American Aluminum Ware Co., Union Township, N. J.
Aircraft parts—$904,489 (55)

American Locomotive Co., Dunkirk, N. Y.
Aircraft parts—$31,900 (50)
Aircraft engine containers—$166,724 (50)

American Machine & Metals, Inc., Sellersville, Pa.
Aircraft parts—$200,000 (65)

Anderson, Inc., Chicago, Ill.
Aircraft components—$15,764 (80)

Anderson Aircraft, Inc., New York, N. Y.
Aircraft fuselage panels—$426,600 (65)

Anderson Aircraft, Inc., New York, N. Y.
Aircraft parts—$161,718 (70)

Arnolt Corp., Warsaw, Ind.
Aircraft parts—$24,121 (80)

Art Metal Construction Co., Jamestown, N. Y.
Aircraft assemblies—$53,921 (65)

Austin-Western Co., Aurora, Illinois
Military earth moving equipment—$447,283 (50)

Axelson Mfg. Co., Vernon, Calif.
Aircraft parts—$466,962 (65)

— B —

The Banner Die, Tool & Stamping Co., Columbus, O.
Aircraft parts—$132,846 (70)

The Barco Machine Products Co., Cleveland, Ohio.
Aircraft parts—$12,455 (80)

The Bassick Co., New Haven, Conn.
Ordnance and aircraft parts—$120,035 (50)

The B.B.B. Mfg. Co., Los Angeles, Calif.
Aircraft parts—$194,336 (75)

B & F Machine Products Co., Chicago, Ill.
Aircraft parts—$19,251 (80)

B C & F Tool Co., Berkley, Mich.
Aircraft parts—$18,800 (70)

Beech Aircraft Corp., Wichita, Kan.
Aircraft wing assemblies—$123,773 (65)

Bell Aircraft Corp., Wheatfield, N. Y.
Aircraft parts—$19,291 (65)

David Bell Co., Inc., Buffalo, N. Y.
Aircraft parts—$26,000 (80)

Bendix Aviation Corp., Davenport, Iowa
Aircraft accessories—$86,784 (65)

Bendix Aviation Corp., Eatontown, N. J.
Aircraft parts—$1,487,000 (65)

Bendix Aviation Corp., Hamilton, Ohio
Aircraft parts—$996,417 (65)

Bendix Aviation Corp., Long Branch, N. J.
Aircraft parts—$196,605 (65)

Bendix Aviation Corp., Bendix Products Div., Mishawaka, Ind.
Aircraft parts—$150,138 (65)

Bendix Aviation Corp., South Bend, Ind.
Aircraft parts—$578,605 (65)

Bendix Aviation Corp., Eclipse-Pioneer Div., Teterboro, N. J.
Aircraft parts—$207,361 (65)
Aircraft parts—$444,365 (65)

Bendix Aviation Corp., Utica, N. Y.
Aircraft accessories & instruments—$2,627,008 (65)

Bishop Machine Works, Los Angeles, Cal.
Aircraft parts—$70,061 (70)

Boeing Airplane Co., Seattle, Wash.
Aircraft—$508,191 (65)
Aircraft—$132,896 (65)

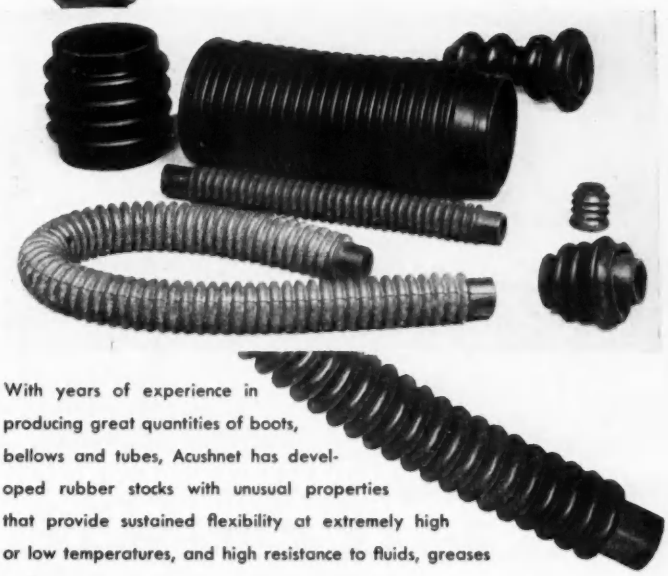
Bonner Machine Works, Inc., El Segundo, Calif.
Aircraft parts—$128,425 (65)

(*Turn to page 506, please*)

BOOTS

BELLOWS

TUBES



With years of experience in producing great quantities of boots, bellows and tubes, Acushnet has developed rubber stocks with unusual properties that provide sustained flexibility at extremely high or low temperatures, and high resistance to fluids, greases and gases.

Our precision-molded boots, bellows and tubes give enduring protection to moving parts by excluding dust, dirt, water, oil, etc. — or by retaining grease, oil, fuel — or by performing both functions at the same time over long periods of continuous flexing. These products are made on order to customer specifications — none are stocked.

Acushnet
PROCESS COMPANY

Send for your copy of the "Acushnet Rubber Handbook", a comprehensive rubber data source widely used in industry as a reference for molded rubber parts.

Address all communications to 754 Belleville Ave., New Bedford, Mass.

New Defense Facilities

(*Continued from page 505*)

Borg-Warner Corp., Bedford, Ohio
Aircraft products—$890,841 (50)

Borg-Warner Corp., Ingersoll Products Div., Kalamazoo, Mich.
Engineering service—$42,817 (65)

Borg-Warner Corp., Muskegon Heights, Mich.
Nose beam aircraft—$47,216 (65)

Borg-Warner Corp., Wooster, Ohio
Aircraft parts—$1,399,499 (65)

Bower Roller Bearing Co., Detroit, Mich.
Roller bearings—$1,100,183 (65)

Homer D. Bronson Co., Beacon Falls, Conn.
Aircraft parts—$25,000 (80)
Aircraft parts—$55,000 (80)

The Brown Corp., Syracuse, N. Y.
Parts for military vehicles—$21,237 (50)

Bruce Engineering Co., Gardena, Calif.
Aircraft parts—$75,000 (40)

Burndy Engineering Co., Inc., New York, N. Y.
Aircraft parts—$234,050 (70)

Bunell Machine & Tool Co., Cleveland, O.
Aircraft parts—$151,692 (75)

For rough, tough going

Le Roi COMPRESSORS ride on TUTHILL

Alloy Steel

SPRINGS

ruggedly constructed to withstand roughest terrain

This TUTHILL SPRING installation cradles the power plant from road jolts.

Special Leaf Springs designed to meet your requirements.

TUTHILL SPRING CO.

760 WEST POLK STREET • CHICAGO 7, ILLINOIS

Burroughs Adding Machine Co., Plymouth, Mich.
Aircraft instruments—$715,250 (65)

—C—

California Reinforced Plastics Co., Berkeley, Calif.
Aircraft parts—$8,033 (65)

Camloc Fastener Corp., Paramus, N. J.
Aircraft parts—$276,000 (45)
Aircraft parts—$55,787 (50)

The Canton Drop Forging & Mfg. Co., Canton, Ohio
Forgings for aircraft—$407,000 (65)

The J. C. Carter Co., Costa Mesa, Calif.
Aircraft parts—$150,000 (60)

J. I. Case Company, Mt. Pleasant, Wis.
Aircraft parts—$320,000 (65)

J. I. Case Co. (Tractor Works), Racine, Wis.
Ordnance—$60,210 (65)

Cessna Aircraft Co., Wichita, Kan.
Aircraft fuselage assembly—$81,680 (65)
Airplanes & parts—$49,059 (65)

Champion Motors Co., New Brighton, Minn.
Aircraft parts—$20,636 (80)

Chicago Forging & Mfg. Co., Chicago, Ill.
Aircraft parts—$76,043 (75)

Chicago Metal Hose Corp., Savanna, Ill.
Aircraft parts—$171,610 (70)

The Chicago Screw Co., Bellwood, Ill.
Aircraft parts—$1,004,984 (65)
Aircraft parts—$1,063,083 (65)

Chrysler Corp., Detroit, Mich.
Military trucks & spare parts—$597,984 (65)

Chrysler Corp., San Leandro, Calif.
Aircraft parts—$6,680,475 (50)

G. M. Ciannini & Co., Inc., Pasadena, Cal.
Aircraft parts—$7,462 (75)

Clark Bros. Co., Inc., Olean, N. Y.
Gas & Diesel turbines—$68,559 (50)

Clark Equipment Co., Buchanan, Mich.
Military trucks and tractors—$534,000 (50)

Clark Equipment Co., Calhoun County, Mich.
Military trucks and tractors—$1,928,150 (40)
Military trucks and tractors—$534,660 (50)

Clark Grave Vault Co., Columbus, Ohio
Aircraft parts—$232,100 (65)

Clary Multiplier Corp., Downingtown, Pa.
Aircraft parts—$11,520 (65)

Clifford Manufacturing Co., Waltham, Mass.
Aircraft parts—$156,690 (65)

Configured Tube Products Co., Chicago, Ill.
Aircraft parts—$22,573 (75)

Consolidated Industries, Inc., West Cheshire, Conn.
Aluminum aircraft forgings—$60,554 (65)

The Coleman Co., Inc., Wichita, Kan.
Aircraft parts—$491,250 (65)

Collins Engineering Co., Inglewood, Cal.
Aircraft parts—$127,475 (50)

Com-Air Products, Inc., Los Angeles, Cal.
Aircraft parts—$194,441 (80)

The Cornelius Co., New Brighton, Minn.
Aircraft parts—$18,042 (75)

Cramer Posture Chair Co., Inc., Kansas City, Mo.
Aircraft parts—$133,500 (60)

Crown City Precision Grinding Co., Pasadena, Calif.
Aircraft parts—$21,201 (80)

Cummins Engine Co., Inc., Bronx, N. Y.
Diesel engine parts—$372,602 (50)

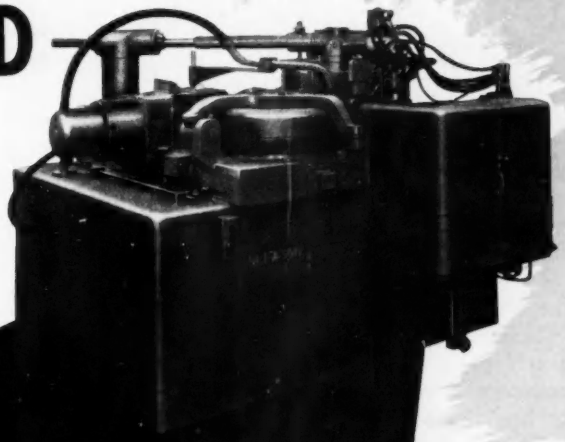
Cummins Engine Co., Columbus, Ind.
Diesel engines—$3,735,666 (50)

Cummins Engine Co., Columbus, Ohio
Diesel engine parts—$817,655 (50)

(*Turn to page 508, please*)

FASTEST EQUIPMENT EVER DEVELOPED

—FOR QUANTITY PRODUCTION OF STRAIGHT BEVEL GEARS



GLEASON NO 8 STRAIGHT BEVEL REVACYCLE MACHINE

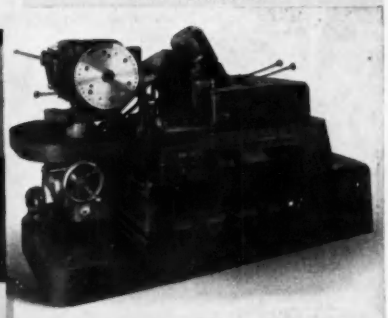
The No. 8 Straight Bevel Revacycle machine is a high production machine, which can be equipped with an automatic loader for continuous operation from blank to finished gear including burring. A single cutter has both roughing and finishing blades and completes each gear from the solid. For extremely heavy pitches, such as used in tractors and trucks, these machines may be coupled in a Dual Unit, one to rough cut and the other to finish cut the teeth . . . blanks being transferred automatically between the two machines.

To maintain the high production for which these machines were intended, the No. 13 Revacycle Cutter Sharpener is a necessary companion machine . . . designed to provide properly sharpened cutters through automatic sharpening.

For consistently fine production, the Gleason No. 6 Angular Hypoid Tester will check backlash, runout, tooth spacing, tooth profile error and variations in tooth thickness. It is your best means of simulating the actual operating conditions to which the gears will be subjected.

AUXILIARY EQUIPMENT

GLEASON NO. 13 HYPOID CUTTER SHARPENER



GLEASON NO. 6 ANGULAR HYPOID TESTER

BUILDERS OF BEVEL GEAR MACHINERY · FOR OVER EIGHTY-FIVE YEARS · GLEASON

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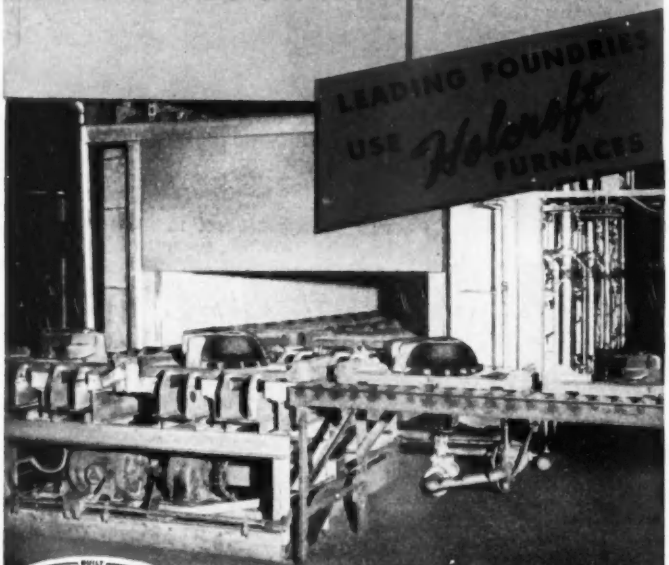
1000 UNIVERSITY AVENUE · ROCHESTER 3, NEW YORK

When foundries are called upon to produce a good-looking casting in the annealing process, they turn to a Holcroft furnace like this. Castings have a hard, blue, rust-resisting scale.

These industry leaders recognize Holcroft as a leader, too. They know that Holcroft engineers developed many of the processes and basic principles in the heat treat industry

They realize that their Holcroft furnace is sometimes going to cost more initially than a competitive installation. But that's justified because when all the returns are in, there'll be a lower cost per heat-treated piece.

You, too, can cut your heat-treating cost. Call Holcroft today. **Holcroft and Company, 6545 Epworth Blvd., Detroit 10, Michigan.**



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PRODUCTION HEAT TREAT FURNACES FOR EVERY PURPOSE

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CLEVELAND 15 — Wallace F. Schott, 1900 Euclid Ave.
HOUSTON 1 — R. E. McArdle, 5724 Navigation Blvd.
CANADA — Walker Metal Products, Ltd., Windsor, Ontario
EUROPE — S. O. F. I. M., Paris 8, France

Defense Facilities

(*Continued from page 506*)

The Cuno Engineering Corp., Meriden, Conn.
Combat vehicle oil filters—$646,883 (50)

Curtiss-Wright Corp., Caldwell, N. J.
Aircraft propellers—$75,688 (65)

Curtiss-Wright Corp., Carlstadt-East Rutherford, N. J.
Flight trainers—$2,180,351 (35)
Flight trainers—$34,512 (65)

The Cyril Bath Co., Cleveland, Ohio
Aircraft parts—$12,866 (80)
Aircraft parts—$34,267 (80)
Aircraft parts—$17,167 (80)

— D —

Daco Machine & Tool Co., Brooklyn, N. Y.
Aircraft carburetors—$10,707 (80)

A. Dalkin Co., Chicago, Ill.
Aircraft parts—$112,659 (70)

Danbury Centerless Grinding Co., Danbury, Conn.
Aircraft parts—$49,500 (70)

Danuser Machine Works, Tulsa, Okla.
Aircraft parts—$15,057 (80)

Deere Manufacturing Co., Dubuque, Iowa
Aircraft landing gear—$442,000 (65)

Delavan Manufacturing Co., West Des Moines, Iowa
Aircraft parts—$215,000 (65)

The Denison Engineering Co., Columbus, Ohio
Aircraft testing equipment—$303,275 (70)

Detroit Harvester Co., Detroit, Mich.
Aircraft engine parts—$201,414 (75)

Detroit Magnesium & Aluminum Casting Co., Detroit, Mich.
Aircraft engine castings—$26,525 (65)

Dial Light Co. of America, Inc., Brooklyn, N. Y.
Aircraft parts—$560,000 (50)
Aircraft parts—$49,400 (65)

The Dieron Co., Inc., Los Angeles, Calif.
Aircraft accessories—$64,794 (50)

Dornson Corp., Culver City, Calif.
Ordnance and aircraft components— $50,232 (70)

Double T Products Co., Hawthorne, Calif.
Aircraft parts—$54,645 (70)

Douglas Aircraft Co., Inc., Bell, Calif.
Airplanes and parts—$307,491 (65)

Douglas Aircraft Co., Inc., Bell, Calif.
Airplane and parts—$70,588 (65)

Douglas Aircraft Co., Inc., Long Beach, Calif.
Airplane and parts—$31,480 (65)

Douglas Aircraft Co., Inc., El Segundo, Calif.
Airplanes and parts—$451,885 (65)

Douglas Aircraft Co., Santa Monica, Cal.
Airplanes and parts—$448,373 (65)
Airplanes and parts—$642,377 (65)
Airplanes and parts—$122,674 (65)
Aircraft and parts—$579,336 (65)

Karl Douglas Co., Inglewood, Calif.
Aircraft landing gear—$55,136 (80)

Dow Corning Corp., Midland, Mich.
Silicone products—$10,194,000 (60)

Downey Machine Co., Downey, Calif.
Aircraft parts—$88,955 (70)

Duncan Electric Mfg. Co., Lafayette, Ind.
Aircraft parts—$51,264 (75)

Dundick Tool Works, Ridgefield, Ill.
Aircraft parts—$32,000 (80)

Dundick Tool Works, Chicago, Ill.
Aircraft parts—$10,500 (80)

(*Turn to page 509, please*)

Defense Facilities

(*Continued from page 506*)

Drayer-Hanson, Inc., Los Angeles, Calif.
Aircraft parts—$61,739 (65)

DuPage Precision Products, Naperville, Ill.
Aircraft parts—$86,974 (80)

Dynamic Air Engineering, Inc., Los Angeles, Calif.
Aircraft parts—$15,683 (70)

—E—

Electrical Engineering & Mfg. Corp., Los Angeles, Calif.
Aircraft parts—$42,750 (65)

Elliott Engineering Co., Lynwood, Calif.
Aircraft parts—$12,720 (80)

Eton Machine Co., Inc., Farmingdale, N.Y.
Aircraft parts—$17,265 (80)

Ex-Cell-O Corp., Highland Park, Mich.
Aircraft parts—$316,471 (65)

Ex-Cell-O Corp., Lima, Ohio.
Aircraft parts—$2,100,000 (65)

—F—

Fairchild Engine and Airplane Corp., Hagerstown, Md.
Aircraft—$500,000 (65)

Farm Tools, Inc., Cleveland, Ohio
Aircraft parts—$121,996 (70)

Foote Bros. Gear & Machine Corp., Chicago, Ill.
Aircraft parts—$6,278 (75)

Ford Motor Co., Claycomo, Clay City, Mo.
Military aircraft components—$20,762,545 (65)

Ford Motor Co., Ypsilanti, Mich.
Aircraft parts—$6,018,354 (65)

R. H. Freitag Mfg. Co., Akron, Ohio
Aircraft parts—$126,517 (70)

—G—

General Development Corp., Elkton, Md.
Aircraft parts—$75,000 (65)

General Metals Corp., Burbank, Calif.
Aircraft parts—$48,585 (65)

General Motors Corp., Anderson, Ind.
Aircraft engine components—$2,687,475 (65)
Aircraft parts—$2,148,503 (65)

General Motors Corp., Bedford, Ind.
Aircraft and parts—$1,778,950 (65)

General Motors Corp., Bristol, Conn.
Ball bearings—$673,580 (65)

General Motors Corp., Cleveland, Ohio
Diesel engine generator—$1,265,000 (50)

General Motors Corp., Dayton, Ohio
Ordnance—$109,950 (50)

General Motors Corp., Detroit, Mich.
Machine tools—$1,751,760 (65)

General Motors Corp., Elyria, Ohio
Aircraft parts—$1,791,000 (65)

General Motors Corp., Flint, Mich.
Aircraft parts—$119,603 (65)

General Electric Co., Fort Wayne, Ind.
Aircraft parts—$285,200 (65)

General Motors Corp., Harrison, N. J.
Roller bearings—$3,560,695 (65)

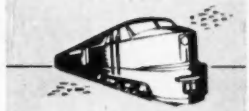
General Motors Corp., Lockport, N. Y.
Aircraft parts—$3,575,000 (65)

General Motors Corp., Montgomery City, Ohio
Aircraft equipment—$7,016,573 (65)

General Motors, Rochester, N. Y.
Ordnance—$106,000 (65)
Aircraft parts—$6,878,984 (65)

(*Turn to page 512, please*)

GEARS *by Fairfield*



A Plus Value in Any Product!

IF GEARS are a part of the machines you make, there is no finer recommendation for YOUR PRODUCT than to be able to say it is "Equipped with FAIRFIELD GEARS!"

At Fairfield, your gears are in the hands of specialists equipped with every modern facility for producing fine gears efficiently and economically. *For the Best in Gears, Specify Fairfield!*

Gears made to order:

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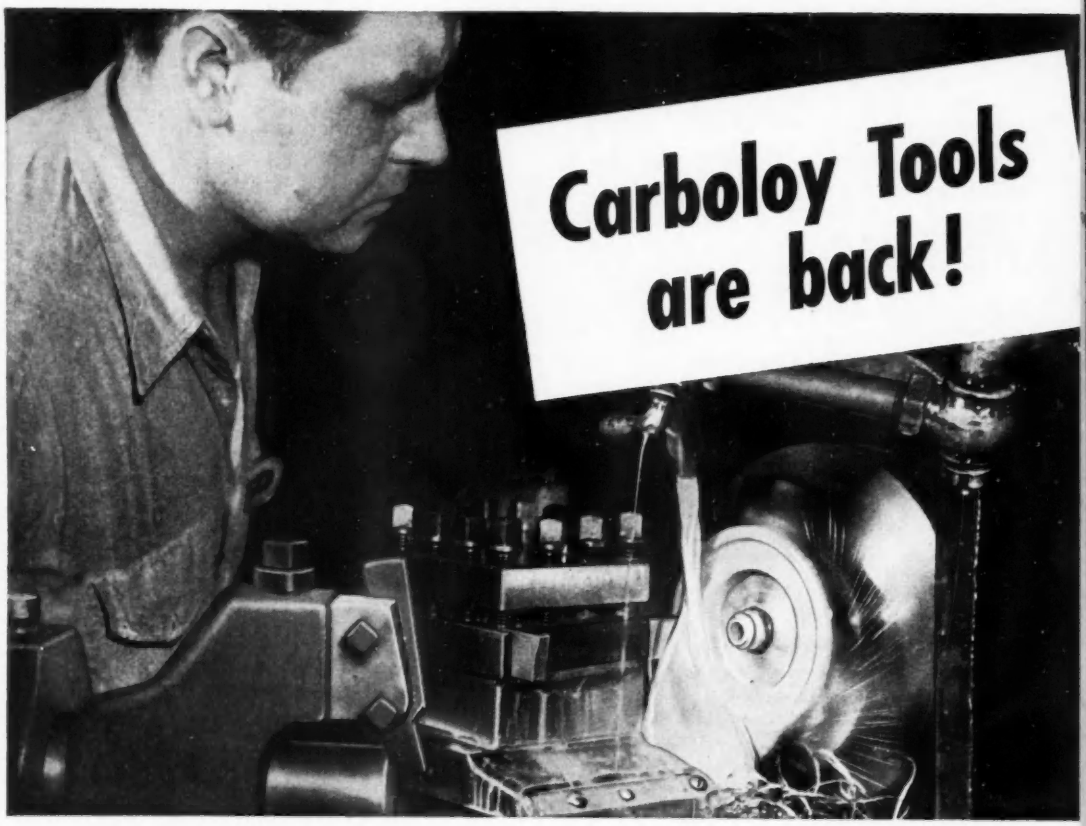


Now you get all these benefits <u>again</u> from <u>genuine</u> Carboloy Cemented Carbides

ONCE again production lines are rolling full blast at Carboloy plants. And once again you can start to get *all* the fast-cutting, cost-cutting benefits that Standard Carboloy Tools and Blanks are famous for:

Greater output per tool per hour. Longer tool life. Less downtime and maintenance. Lower costs all down the line from tough, wear-resistant cemented carbides that have no equal in the field.

There's no need to accept substitutes any longer, nor to settle for ordinary carbide performance. With Carboloy "Standards" coming back on distributors' shelves, you can again start to get sensational, proved Carboloy results that add up to *faster, better, more profitable* production in your plant.

NATION-WIDE STOCKS, TOO!

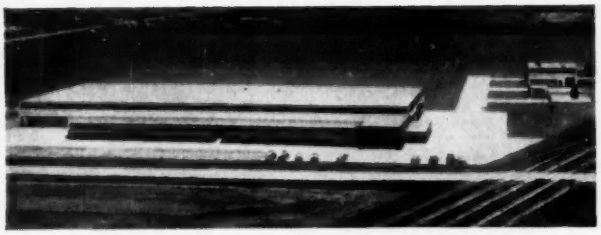
See your Authorized Carboloy Distributor for the 11 great styles of inventory-slashing Standard Tools that can do 80% of your single-point machining jobs. And start stocking up again on the handy Standard Blanks for the "special" jobs, too! As before, blanks are available in hundreds of sizes and shapes . . . easy to braze and grind in your own toolroom to your exact needs for emergency use.

and services!

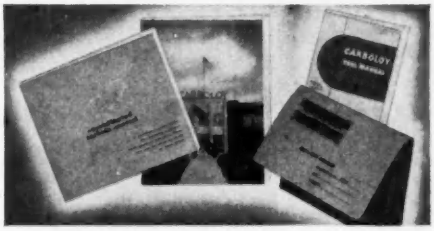
Of course, Carboloy services are *never* in short supply. Get them also! They include engineering field services, in-plant training aids, vast amounts of technical literature on drilling and other subjects, factory engineering and research aid, plus convenient local help from Authorized Carboloy Distributors. In short, they include everything you need to get the superior performance from Carboloy Cemented Carbides that Carboloy metallurgists and quality-control production methods build into them.

See your Authorized Carboloy Distributor or call Carboloy direct.

THE LARGEST, most modern cemented carbide plant in the world is back again on full production . . . starting to turn out controlled, high-quality Carboloy Cemented Carbides you can depend upon for uniformity, matchless performance. The production techniques practiced here at the Carboloy Detroit plant mean better carbide tools at lower cost, too.



AT EDMORE, Michigan, the Carboloy organization has just opened a fine, new plant. It, too, is swinging into production and rushing initial stocks of Standard Carboloy Tools to distributors' shelves for you. Ask for them. Accept no substitutes.



FREE—4 helpful, informative Carboloy items: the Tool Catalog GT-250; CCC Plan Book; the Carboloy Tool Manual; complete kit of carbide data on shell machining (for shell contractors only). They're your guides to more efficient production, so send coupon for them today.

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DEPARTMENT OF GENERAL ELECTRIC COMPANY

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Clip and send today

CARBOLOY

- ☐ Tool Catalog GT-250
- ☐ CCC Plan Book
- ☐ Carboloy Tool Manual
- ☐ Information about Customer Training School
- ☐ Data on cast iron drilling, deep-hole trepanning and gun drilling with Carboloy Cemented Carbides
- ☐ Complete carbide data on shell machining (for shell contractors only).

Department of General Electric Company
11151 East 8 Mile Road, Detroit 32, Michigan
Gentlemen:
Please rush me, without cost or obligation, the items checked at left.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Defense Facilities

(*Continued from page 509*)

General Motors, Saginaw, Mich.
Aircraft parts —$675,000 (65)
Steel castings—$753,400 (65)

General Motors Corp., Sandusky, Ohio
Ball bearings—$289,953 (65)

General Motors Corp., Syracuse, N. Y.
Aircraft parts—$5,335,000 (65)

General Motors Corp., Vandalia, Ohio
Aircraft parts—$595,909 (65)
Aircraft parts—$1,547,047 (65)

G-M Laboratories, Inc., Chicago, Ill.
Aircraft parts—$70,532 (75)

Gladden Products Corp., Glendale, Cal.
Aircraft parts—$52,709 (80)

Goodyear Aircraft Corp., Akron, Ohio
Aircraft research & development—$789,685 (65)
ZPM Airships—$338,912 (65)

The Goodyear Tire & Rubber Co., Akron, Ohio
Airplane parts—$473,835 (50)

Grumman Aircraft Engineering Corp., Bethpage, L. I., N. Y.
Military aircraft—$350,000 (65)

—H—

Hallett Mfg. Co., Inglewood, Calif.
Diesel electric sets—$72,152 (75)

Hammond Mfg. Corp., Pasadena, Calif.
Aircraft servicing equipment—$63,799 (65)

Hampton Engineering Co., Los Angeles, Calif.
Aircraft components—$20,631 (80)

Haremont Automotive Products, Inc., Chicago, Ill.
Ordnance—$15,010 (65)

Harnischfeger Corp., Escanaba, Mich.
Excavator and truck cranes—$646,844 (50)

Harris-Seybold Co., Cleveland, Ohio
Aircraft parts—$624,984 (65)

Hartford Machine Screw Co., Windsor, Conn.
Aircraft parts—$24,331 (65)
Aircraft parts—$116,965 (65)

Hartford Tool & Die Co., Inc., Hartford, Conn.
Aircraft parts—$36,990 (70)

Hartford Tool & Die Co., West Hartford, Conn.
Parts for aircraft engines—$200,000 (65)

Heisel Press Mfg. Co., Boston, Mass.
Aircraft engine parts—$8,500 (80)

Hershey Metal Products, Inc., Ansonia, Conn.
Aircraft parts—$153,800 (50)

Hetherington, Inc., Sharon Hill, Pa.
Aircraft parts—$19,116 (75)

Hiller Helicopters, Palo Alto, Calif.
Helicopters—$488,162 (65)

Holley Carburetor Co., Detroit, Mich.
Aircraft parts—$9,943 (70)

Holley Carburetor Co., Van Dyke, Mich.
Aircraft parts—$9,654 (65)

Hughes Tool Co., Culver City, Calif.
Aircraft equipment—$860,000 (65)
Aircraft equipment—$2,130,388 (65)

Hunter Douglas Corp., Riverside, Calif.
Aircraft sub-assemblies—$17,618 (70)

Hydro-Aire, Inc., Burbank, Calif.
Aircraft engine—$221,350 (65)

—I—

Intercontinental Mfg. Co., Inc., Garland, Texas
Aircraft components—$34,750 (70)
Aircraft parts—$38,629 (70)

Iowa Mfg. Co., Cedar Rapids, Iowa
Military earth moving equip.—$87,229 (60)

Indiana Gear Works, Inc., Indianapolis, Ind.
Helicopter transmission—$79,800 (65)

Island Machine Co., Inc., Farmingdale, N. Y.
Aircraft parts—$23,432 (75)

—J—

Jack & Heintz Precision Industries, Inc., Maple Heights, Ohio
Aircraft equipment—$99,215 (65)

F. L. Jacobs Co., Detroit, Mich.
Ordnance—$223,773 (75)

Jarvis Mfg., Inc., Wichita, Kansas
Aircraft parts—$11,704 (80)

Jasco Aluminum Products Corp., New Hyde Park, L. I., N. Y.
Aircraft parts—$294,000 (50)

Joy Mfg. Co., New Phila., Ohio
Aircraft parts—$122,740 (65)

—K—

C. B. Kaupp & Son, Maplewood, N. J.
Aircraft parts—$40,299 (75)

The Kaweer Company, Niles, Mich.
Aircraft parts—$1,947,211 (70)

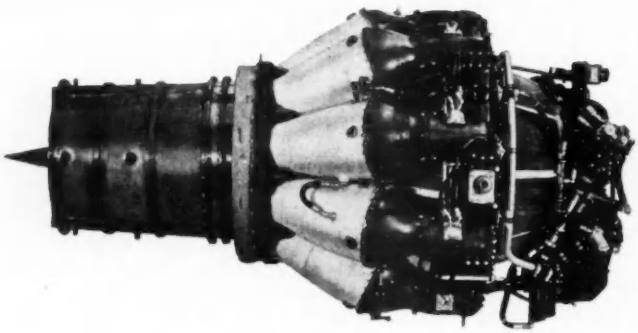
Kennametal, Inc., Bedford, Pa.
Aircraft parts—$224,700 (50)

Kennametal, Inc., Latrobe, Pa.
Aircraft parts—$395,800 (65)

Walter Kidde & Co., Inc., Belleville, N. J.
Ordnance and aircraft—$458,594 (60)

(*Turn to page 514, please*)

The Pratt & Whitney J-42



adds new lustre to a famous name

In building the J-42 Turbo-Wasp jet, Pratt & Whitney Aircraft adds another first to its already impressive list of achievements. This jet engine is the first authorized to go 1,000 hours between major overhauls.

Parts machined by American Non-Gran Bronze are in this notable engine. One explanation of our long and successful collaboration with the aircraft industry has been the extreme accuracy with which we conform to their specifications. American Non-Gran Bronze Co., Berwyn, Pa., *on the Pennsylvania R. R. main line, in metropolitan Philadelphia.*

Write for 16-page brochure, illustrating our contract manufacturing facilities for precision machine work in quantity lots . . . sand or centrifugal casting, in any of the bronze alloys.

PRECISION MACHINE WORK
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WASHERS
PRECISION PRODUCED TO EVERY
AIRCRAFT AND ARMED FORCES SPECIFICATION
You name it . . . Garrett makes it! Garrett manufactures the most complete line of washers in the world. Whatever you need to meet Armed Forces or aircraft specifications. Some of them are:
AN 935 AN 940 AN 945 AN 950 AN 955 AN 960
AN 961 AN 970 AN 975 AN 8013 AN 122576 thru 122600
NAS 70 NAS 143 NAS 143C NAS 463 A-3135 (countersunk) A-3235 (countersunk)
IMMEDIATE DELIVERY FROM STOCK OF ALL ABOVE ITEMS
Garrett's complete manufacturing facilities and large inventories of all types of washers—lock and flat—make possible quick deliveries of regular steel, brass, bronze, monel metal, aluminum, Alclad and copper as specified. Garrett's plating facilities can supply them plated with zinc, nickel, brass, chrome or parkerized.
For all types of small metal stampings, lock washers, flat washers, hose clamps or springs Garrett as a manufacturer offers you one source, one high quality and one place to rely on quick deliveries. Whether standard parts or the latest specifications, call Garrett. Write for latest folder.
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A ALWAYS MAKES POSSIBLE
B ETTER PRODUCTS AT LOWER
C OST

Michigan
Electric Resistance
WELDED
STEEL
TUBING

A Quality Product

Muffler Inlet Pipe

ROUND

⅜" to 4" O. D. 9 to 22 gauge

SQUARE-RECTANGULAR

½" to 2" 20 gauge, 1" to 2¾", 14, 16, 18 gauge

Carbon 1010 to 1025

Michigan Tubing

has uniform strength, weight, ductility, I. D. and O. D., wall thickness, machinability, and weldability. It can be flanged, expanded, tapered, swaged, beaded, upset, flattened, forged, spun closed, fluted, and rolled. Available in a wide range of sizes, shapes and wall thicknesses, prefabricated by Michigan or formed and machined in your own plant.

This is an excellent example of Michigan workmanship in the performance of several intricate fabricating operations to most exacting tolerances.

The pipe manifold end is expanded to 2.225" I. D., a flange superimposed, and a flanged ferrule press-fitted for immediate assembly to exhaust manifold. Two bending operations with minimum reductions permit full flow of gas to hold back-pressure to a minimum. Muffler end diameter of tube is increased by expanding and a bead superimposed to form a "gas-tight" joint.

Michigan engineering and fabrication know-how make for accuracy and economy in the manufacture of this and many other tubular products. Why not consult Michigan about your fabrication problem.

Consult us for engineering and technical help in the selection of tubing best suited to your needs.

Plus Fabricating of our own tubing Michigan is interested ONLY IN THE FABRICATION OF Stainless steel, copper, brass and aluminum tubing.

RESISTANCE WELDED STEEL TUBING
Michigan STEEL TUBE PRODUCTS CO.
THE OLDEST NAME IN ELECTRIC

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Defense Facilities

(Continued from page 512)

Kieger Machine Co., Los Angeles, Calif.
Aircraft parts—$71,500 (25)
Aircraft parts—$25,546 (70)

—L—

Ladish Co., Cudahy, Wis.
Aircraft parts—$1,760,630 (65)

The Lake Shore Machine Co., Euclid, O.
Aircraft parts—$26,655 (70)

The Lamson & Sessions Co., Cleveland, O.
Aircraft accessories—$74,400 (50)

Langley Corp., San Diego, Calif.
Aircraft parts—$77,316 (75)

Laurel Sheet Metal Products Co., Hollywood, Calif.
Aircraft parts—$13,210 (65)

Leckinger Machine & Exp. Co., Los Angeles, Calif.
Aircraft parts—$19,933 (80)

The Leland Electric Co., Dayton, Ohio
Aircraft parts—$52,840 (75)

Le Roi Co., Milwaukee, Wis.
Ordnance—$152,162 (50)

The Lewis Engineering Co., Naugatuck, Conn.
Aircraft parts—$37,193 (65)

Liberty Products Corp., Farmingdale, L. I., N. Y.
Aircraft parts—$81,330 (70)

Linco Tool & Machine Co., Watertown, Mass.
Aircraft parts—$95,000 (65)

Lockheed Aircraft Corp., Burbank, Calif.
Aircraft—$1,153,966 (65)
Aircraft—$2,387,000 (65)
Aircraft—$724,322 (65)

Lockheed Aircraft Corp., Van Nuys, Cal.
Aircraft—$42,241 (65)

Lombard Governor Corp., Ashland, Mass.
Aluminum castings for aircraft—$32,036 (70)

Lord Mfg. Co., Erie, Pa.
Aircraft parts—$570,968 (70)

Los Angeles Standard Rubber Co., Los Angeles, Calif.
Aircraft parts—$8,030 (50)

H. W. Loud Machine Works, Inc., Pomona, Calif.
Aircraft parts—$250,488 (70)

Lovequist Engineering Co., Los Angeles, Calif.
Aircraft parts—$24,225 (75)

—M—

Majestic Aircraft Div. of Majestic Metal Specialties, Inc., Moosup, Conn.
Aircraft parts—$27,500 (65)

Majestic Machine & Tool Corp., Dearborn, Mich.
Aircraft parts—$10,630 (65)

Magnus Tool & Die Co., Newark, N. J.
Aircraft parts—$23,930 (80)

Maks Machine Co., Detroit, Mich.
Aircraft parts—$65,000 (50)
Aircraft parts—$50,935 (70)

Marman Products Co., Inc., Inglewood, Calif.
Aircraft parts—$5,052 (75)

The Marquette Metal Products Co., Cleveland, Ohio
Aircraft parts—$58,718 (75)

The Glenn L. Martin Co., Middle River, Md.
Aircraft and parts—$193,498 (75)
Aircraft and parts—$150,480 (75)

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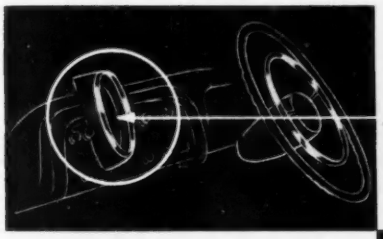
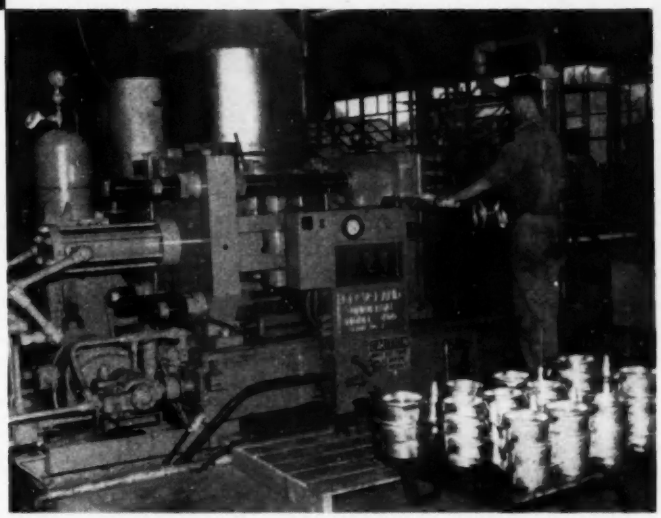


426 MPH*

in a CLEVELAND die casting machine!



* That's the actual figure, but the abbreviation stands for units *made* per hour — in the Cleveland Die Casting Machine shown at right. Working in the ultra-efficient King-Seeley plant at Scio, Michigan, this Cleveland machine is speeding production of automobile dashboard instrument parts. The part being produced, an instrument cluster housing, is shown below, "as cast."

King-Seeley uses zinc die castings extensively for such parts as the horn ring shown below; housings for telegages (water temperature, fuel level and oil pressure); bezels; small intricate frames; and speedometer and gauge components. Chances are your car has several King-Seeley products in it.

King-Seeley Corporation, leading supplier of dashboard instruments to major automobile manufacturers, is widely known for excellence of product design and construction; for high efficiency in manufacturing methods. To maintain critical standards in its die casting department, King-Seeley relies on a Model 400 Cleveland to produce top quality castings at high speeds.

Typical of the parts produced on this Cleveland machine is the instrument cluster housing shown above. Approximately six pounds of zinc alloy are injected into the die, producing two parts per shot. The Cleveland's powerful die locking pressure and high injection speed produce sound, dense, *"hardware finish"* castings. Dimensions are held to close tolerances. Secondary drilling operations on the part have been eliminated by precision coring of 13 holes. Production averages 213 shots—426 parts —made per hour.

To get the *most* from *your* die casting department—in speed of production and quality of casting—profit from the experience of leading die casters and investigate the advantages of the Model 400 Cleveland. Your inquiries will receive prompt attention. For machine specifications, write for free copy of bulletin.

THE CLEVELAND AUTOMATIC MACHINE COMPANY

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SALES OFFICES: CHICAGO
CLEVELAND • DETROIT
HARTFORD • S. ORANGE

Manufacturers of a Complete Line of Single Spindle Automatic Screw Machines and High Pressure Hydraulic Die Casting Machines

Defense Facilities

(*Continued from page 514*)

Mar Vista Engineering Co., Los Angeles, Calif.
Aircraft parts—$449,871 (70)

Mayfair Industries, Inc., Chicago, Ill.
Aircraft parts—$104,346 (80)

The MB Manufacturing Co., Inc., New Haven, Conn.
Aircraft parts—$75,528 (80)

Mechanical Products, Inc., Jackson, Mich.
Aircraft parts—$219,143 (70)

Metalco, Inc., Jackson, Mich.
Aircraft parts—$135,736 (50)

Metal Control Laboratories, Huntington Park, Calif.
Aircraft testing equip.—$60,000 (65)

Metalcrafters, Inc., Columbus, Ohio
Aircraft parts—$33,622 (80)

Metalcrafters, Inc., Kenton, Ohio
Aircraft parts—$36,847 (80)

Mid-Western Industries, Inc., Wichita, Kan.
Aircraft parts—$19,374 (65)

Michigan Steel Casting Co., Detroit, Mich.
Aircraft parts—$5,595 (65)

Miller Industries, Jackson, Mich.
Aircraft parts—$41,035 (80)

Modern Metal Spinning & Mfg. Co., Los Angeles, Calif.
Components for aircrafts—$12,819 (75)

Moore Drop Forging Co., Chicopee, Mass.
Ordnance and aircraft—$23,000 (75)
Ordnance and aircraft—$55,250 (75)

Moore Drop Forging Co., Springfield, Mass.
Ordnance and aircraft—$23,000 (75)

Motor Wheel Corp., Lansing, Mich.
Aircraft brake drums—$13,662 (65)

Moto-Sway Corp. of America, South Pasadena, Calif.
Aircraft parts—$23,040 (80)

Mueller Co., Los Angeles, Calif.
Fittings for aircraft—$3,556 (65)

Mykroy, Inc., Morton Grove, Ill.
Aircraft parts—$39,000 (40)

— N —

Nash-Kelvinator Corp., Kenosha, Wis.
Aircraft engines—$6,876,115 (65)

National Tapered Wings, Inc., Los Angeles, Calif.
Aircraft parts—$247,392 (70)
Aircraft parts—$47,000 (20)

Neuschotz Engineering Co., Los Angeles, Calif.
Aircraft parts—$18,737 (80)

New England Machine Works, Inc., Waterbury, Conn.
Aircraft engine parts—$49,578 (80)

New Process Gear Corp., Syracuse, N. Y.
Transmissions for military trucks—$162,697 (65)

New Rochelle Precision Grinding Corp., New Rochelle, N. Y.
Aircraft parts—$47,949 (80)

New York Gear Works, Richmond Hill, N. Y.
Aircraft parts—$9,555 (80)

Niles-Bement-Pond Co., Warwick, R. I.
Aircraft engine parts—$371,293 (65)

Northrop Aircraft, Inc., Hawthorne, Cal.
Aircraft and aircraft parts—$554,208 (65)

— O —

Ohmite Manufacturing Co., Skokie, Ill.
Aircraft parts—$1,289,827 (65)

Olofsson Tool & Die Co., Lansing, Mich.
Engine production—$43,570 (80)

Omaha Production Co., Omaha, Nebraska
Aircraft products—$86,833 (65)

O & M Machine Co., Inc., Los Angeles, Calif.
Aircraft components—$11,575 (75)

Oneida Ltd., Sherrill, N. Y.
Aircraft parts—$1,234,329 (65)

— P —

Pacific Airmotive Corp., Burbank, Calif.
Aircraft parts—$41,563 (75)

Pacific Airmotive Corp., Chino, Calif.
Aircraft parts—$21,521 (75)

Pacific Car & Foundry Co., Renton, Wash.
Ordnance vehicles—$28,000 (65)
Ordnance vehicles—$38,500 (65)
Ordnance vehicles—$19,529 (65)

Packard Motor Car Co., Detroit, Mich.
Navy diesel engines—$262,894 (50)

Paramount Textile Machinery Co., Kankakee, Ill.
Aircraft parts—$11,985 (65)

The Parent Co., Los Angeles, Calif.
Aircraft parts—$145,569 (80)

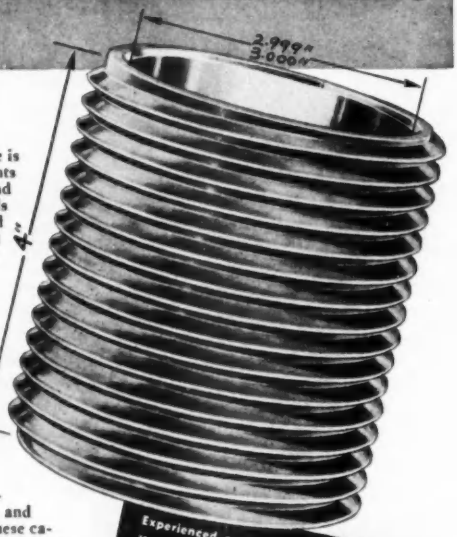
Parsons Tool, Inc., Berlin, Conn.
Aircraft parts—$14,635 (75)

E. A. Patten Co., Manchester, Conn.
Aircraft parts—$78,000 (65)

Patton Mfg. Co., Inc., Springfield, Ohio
Parts for ordnance vehicles—$16,459 (65)
Aircraft parts—$22,357 (65)

Perfex Corp., Milwaukee, Wis.
Aircraft parts—$18,911 (65)
(*Turn to page 518, please*)

Expertly machined
HARDENED & GROUND PARTS



THE sleeve shown here is a large piece and represents an exacting job—the kind we handle well. It calls for accurately hobbed threads over the full length . . . a polish-ground bore concentric with the pitch diameter of the threads . . . tolerances that challenge our ingenuity and skill.

Brown Hardened and Ground Parts have served the automotive industry for more than 40 years. In that time we've gained invaluable experience in precision machining, scientifically-controlled heat treating and micro-finish grinding. These capable facilities are at your command. Merely send us your prints; write or wire your requirements.

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PRESIDENT

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King Pins • Shackle Bolts • Shackle Pins
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Idler Shafts • Stub Axle Shafts
Steering Ball Bolts
Beam Balls and Bolts
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. . . anything in the hardened and ground line, of any analysis steel, up to 4¼" diameter.

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If you manufacture any of the following transportation equipment or supply component parts or assemblies, Lord Engineering can help you:

Railway Cars and Locomotives . . . Trucks and Buses . . . Airframes and Aircraft Engines . . . Earthmoving, Farm and Road Machines . . . Air Compressors . . . Air Conditioners . . . Engine Generator Sets . . . Communication and Signal Equipment.

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HEADQUARTERS FOR VIBRATION CONTROL MOUNTINGS . . . BONDED RUBBER PARTS

Defense Facilities

(Continued from page 516)

The Pierce Governor Co., Inc., Anderson, Ind.
Aircraft parts—$263,206 (70)

Pioneer Central Division, Bendix Aviation Corp., Davenport, Iowa
Aircraft accessories—$2,022,999 (65)

Pioneer Machine Products, St. Louis, Mo.
Aircraft parts—$38,773 (60)
Aircraft parts—$8,209 (70)

Piqua Engineering Inc., Piqua, Ohio
Aircraft parts—$28,000 (40)

Plane Parts, Inc., New Haven, Conn.
Aircraft engine parts—$11,896 (80)

Plough, Inc., Memphis, Tenn.
Aircraft parts—$56,850 (80)

Joseph Pollak Corp., Boston, Mass.
Aircraft and Ordnance parts—$28,835 (65)

Prevost Forged Products, Detroit, Mich.
Ordnance and aircraft parts—$13,905 (70)

P. S. P. Engineering & Mfg. Co., South Gate, Calif.
Aircraft parts—$43,048 (70)

— R —

Regan Forge & Engineering Co., San Pedro, Calif.
Aircraft parts—$25,979 (80)

W. H. Reisner Mfg. Co., Inc., Hagerstown, Md.
Aircraft equipment—$141,319 (70)

Republic Aviation Corp., L. I., N. Y.
Aircraft parts—$800,000 (65)

Research Tool & Die Co. County of Burlington, N. J.
Aircraft parts—$12,206 (80)

Reynolds Metals Co., Richmond, Va.
Aircraft parts—$74,800 (65)

Rocket Jet Engineering Corp., Glendale, Calif.
Airplane parts—$71,918 (75)

Rohm & Haas Co., Knoxville, Tenn.
Aircraft products—$311,849 (50)

Rohr Aircraft Corp., Chula Vista, Calif.
Aircraft parts—$1,885,876 (65)
Aircraft parts—$41,738 (65)

R & M Manufacturing Corp., Ferndale, Mich.
Aircraft parts—$146,833 (45)
Aircraft parts—$49,326 (70)

The Rotary Company, Buffalo, N. Y.
Aircraft parts—$12,709 (65)

The Ryan Aeronautical Co., San Diego, Calif.
Aircraft parts—$382,096 (65)
Aircraft parts—$53,900 (65)

— S —

Sargent Engineering Corp., Huntingdon Park, Calif.
Aircraft parts—$715,000 (70)

Sav-Way Sara Seal, Inc., Detroit, Mich.
Ordnance and aircraft components—$63,000 (65)

Schock, Gusmer & Co., Inc., Hoboken, N. J.
Control units for helicopters—$171,207 (80)

Scott Browne Corp., Newton, Ohio
Aircraft parts—$2,633 (80)

Sealol Mfg. Co., Keene, N. H.
Aircraft parts—$33,295 (65)

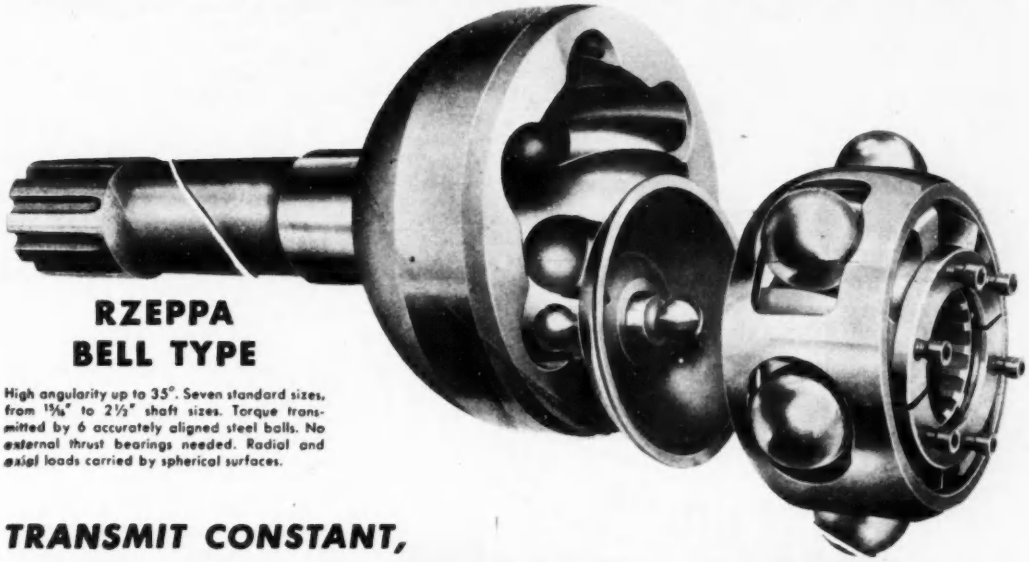
Sealol Corp., Providence, R. I.
Aircraft parts—$15,931 (65)

El Sereno Machine Works, Azusa, Calif.
Aircraft parts—$74,856 (80)

Shakespeare Co., Kalamazoo, Mich.
Aircraft parts—$18,619 (70)
Aircraft instruments—$19,747 (70)
Aircraft parts—$50,000 (65)

(Turn to page 520, please)

CONSTANT VELOCITY
UNIVERSAL JOINTS



RZEPPA BELL TYPE

High angularity up to 35°. Seven standard sizes, from 1⅝" to 2½" shaft sizes. Torque transmitted by 6 accurately aligned steel balls. No external thrust bearings needed. Radial and axial loads carried by spherical surfaces.

TRANSMIT CONSTANT, VIBRATIONLESS, UNIFORM POWER

These joints offer ordnance and industrial design engineers true constant velocity—free from the alternate pulsations that set up vibration even at slight angularity and destructive force as angularity increases.

The field records of over two million Rzeppa joints in the several divisions of our armed forces prove their dependability. The Rzeppa joint consists of an outer driving member and an inner driving member, with a ball cage between them—all assembled into a concentric unit. Each of the six balls transmits torque by free rolling action. No tools are required to assemble the various parts which position each other securely by interlocking. The result is a joint combining great strength, high capacity, constant velocity, compactness, low friction losses and the utmost in dependability.

You are invited to discuss any problems concerning universal joints with our engineering staff, whose long experience in many fields is available to manufacturers of ordnance and industrial products.

RZEPPA DISC TYPE

For low angle operation. Capable of 18° deflection. Sizes from 1⅞" O.D., taking ⅜" shaft and weighing 5 oz. to 10½" O.D., taking 3" shaft and weighing 62 lbs.

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The GEAR GRINDING MACHINE CO.

DETROIT 11, MICHIGAN

RZEPPA *Constant Velocity Universal Joints*

Defense Facilities

(*Continued from page 518*)

Signal Hill Machine Works, Long Beach, Calif.
Aircraft parts—$16,730 (80)

A. O. Smith Corp., Milwaukee, Wis.
Aircraft parts—$111,600 (65)

Smith Bearing Co., Inc., Renton, N. J.
Needle roller bearings for aircraft—$47,452 (65)

Smith-Morris Co., Ferndale, Mich.
Aircraft parts—$192,786 (70)

Solar Aircraft Co., Des Moines, Iowa
Aircraft parts—$56,186 (65)

Solar Aircraft Co., San Diego, Calif.
Aircraft parts—$193,953 (65)

Southwest Airmotive Co., Dallas, Texas
Aircraft—$15,026 (65)

Southwest Products Co., Los Angeles County, Calif.
Bearings for aircraft—$105,000 (50)
Bearings for aircraft—$176,497 (70)

Spartan Aircraft Company, Tulsa, Okla.
Overhaul of aircraft and parts—$329,947 (65)

Specialties, Inc., Charlottesville, Va.
Aircraft fire control systems—$3,473,886 (65)

Special Machine Tool Engineering Works, New York, N. Y.
Aircraft parts—$41,224 (45)

Speed Queen Corp., Ripon, Wisc.
Aircraft engine parts—$170,000 (65)

The Sperry Corp., Great Neck, N. Y.
Aircraft parts—$892,860 (65)

The Steel Improvement & Forge Co., Cleveland, Ohio
Aircraft parts—$19,397 (65)

Standard Steel Treating Co., Detroit, Mich.
Aircraft parts—$86,445 (50)

Standard-Thomson Corp., Vandalia, Ohio
Aircraft parts—$2,465,338 (70)

Sterling Electric Motors, Inc., Van Wert, Ohio
Aircraft parts—$935,010 (70)

Frank J. Stolitzka & Son, Akron, Ohio
Aircraft and Ordnance parts—$9,077 (65)

The Studebaker Corp., South Bend, Ind.
Ordnance—$700,000 (50)

The O. A. Sutton Corp., Wichita, Kans.
Aircraft parts—$138,000 (65)

Swedlow Plastics Co., Los Angeles, Calif.
Aircraft parts—$150,000 (50)

Swedlow Plastics Co., Youngstown, Ohio
Laminated plastic products for aircraft—$31,256 (60); aircraft parts—$13,609 (60)

Syncro Devices, Inc., Ferndale, Mich.
Aircraft parts—$48,801 (65)

— T —

Talley Machine & Mfg. Corp., Los Angeles, Calif.
Aircraft precision work—$8,038 (70)

Taylor Fibre Co., La Verne, Calif.
Aircraft parts—$11,232 (50)

Technical Products Co., Los Angeles, Cal.
Aircraft parts—$131,808 (70)

Teer, Wickwire & Co., Jackson, Mich.
Ordnance and aircraft parts—$49,093 (70)

Thermo Electric Co., Inc., Fair Lawn, N.J.
Aircraft parts—$75,000 (70)

Thompson Industries, Inc., Indianapolis, Ind.
Airplane parts—$12,943 (65)

Thompson Products, Inc., Danville, Pa.
Aircraft parts—$1,065,000 (65)

The Timken Roller Bearing Co., New Phila., Ohio
Tapered roller bearings—$1,383,850 (65)

The Torrington Co., Torrington, Conn.
Ordnance—$352,505 (65)

Tractomotive Corp., Deerfield, Ill.
Bulldozers—$438,083 (60)

Tube Processing, Inc., Indianapolis, Ind.
Aircraft parts—$124,260 (70)

Twigg Industries, Inc., Terre Haute, Ind.
Aircraft components—$8,711 (50)

Twin Coach Co., Aircraft Div., Cheektowaga, N. Y.
Aircraft parts—$60,000 (65)

— U —

United Aircraft Corp., Sikorsky Aircraft Div., Bridgeport, Conn.
Bridgeport, Conn. Helicopters—$1,583,200 (75)
Bridgeport, Conn. Helicopters—$879,200 (70)
Bridgeport, Conn. Helicopters—$1,742,777 (65)

United Aircraft Corp., East Hartford, Conn.
Aircraft parts—$111,095 (65)

United Aircraft Corp., Windsor Locks, Conn.
Aircraft parts—$1,352,349 (65)

U. S. Rubber Co., Fort Wayne, Ind.
Aircraft parts—$409,418 (50)

Universal Engineering Co., Bad Axe, Mich.
Aircraft parts—$156,133 (70)

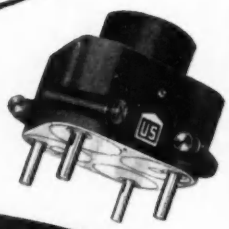
Universal Equipment Co., Culver City, Calif.
Aircraft parts—$191,917 (80)

Universal Machine Co., Inc., Fenton, Mich.
Aircraft parts—$22,550 (80)

(*Turn to page 522, please*)

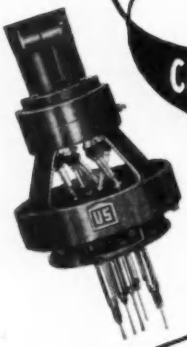
HONESTLY NOW! — HAVE YOU EVER SEEN BETTER DRILL HEADS?

Two spindle head unit — one spindle fixed, the other spindle adjustable for the fixed positions.



Single eccentric type for equally spaced holes on bolt circles.

CONSIDER THEIR PRICE!



Universal joint with slip spindle fixed locating plate.

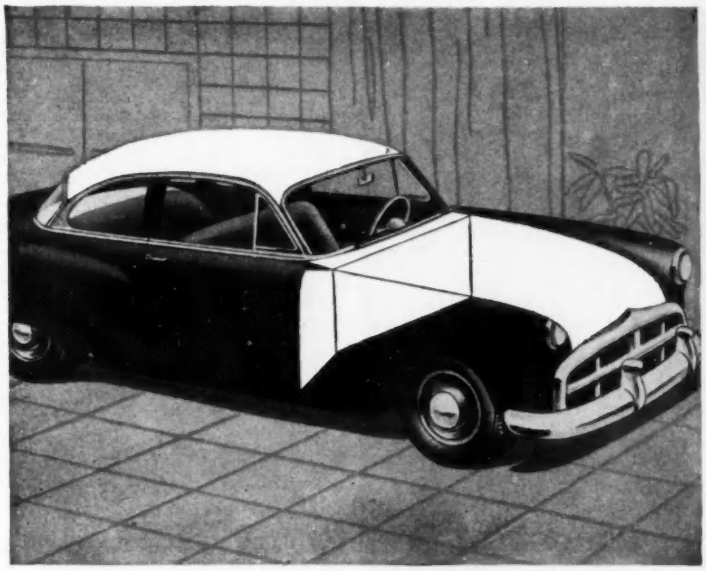
AND THEIR PERFORMANCE!

We manufacture all types of multiple spindle, fixed center, adjustable and individual lead screw tapping heads.

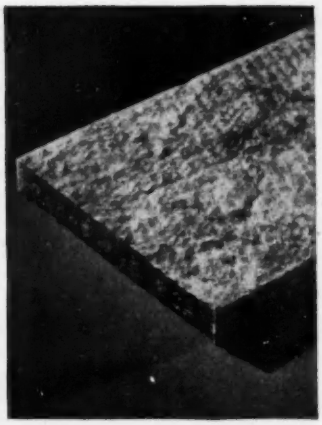
US HEADS

UNITED STATES DRILL HEAD CO.

SINCE 1915 — CINCINNATI 4, OHIO



Passenger comfort is greatly increased in automobiles insulated with L·O·F Fiber-Glass. Easily installed, lightweight, low moisture content. For tops, under dash, on fire wall under hood, below package tray. High sound-insulating efficiency.



Super•Fine "B" Fiber offers excellent insulating properties against heat, cold, noise. Standard widths: 18", 24", 36" and 72". Temperature range: subzero F. to plus 450° F.

L·O·F Fiber·Glass meets high standards demanded for automobile insulation!

Proven glass technology and experience of Libbey·Owens·Ford provide industry with new quality source of supply

YEARS of experience in supplying fine glass products to the industry gained L·O·F a reputation for meeting the rigid automotive schedules and production requirements. Now, Libbey·Owens·Ford applies this long-time experience to supplying quality insulation for automobiles . . . L·O·F Fiber·Glass.

The proven glass technology and new plant facilities of Libbey·Owens·Ford are turning out top-grade insulation that meets the highest standards for sound, heat and cold insulation.

Look into the outstanding advantages of Fiber·Glass as insulation for tops, in the dash, on fire walls, under the hood and beneath package trays. If you are currently using fibrous glass, count on L·O·F as a new source ready to give you a quality product and delivery on schedule.

For technical data, or consultation on uses of Fiber·Glass in the automotive field, call the L·O·F Detroit office, 610 Fisher Building, Trinity 5-0080. Or write, wire or phone Libbey·Owens·Ford, Dept. F·G 732, Nicholas Building, Toledo 3, Ohio.

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ELECTRIC FURNACE STEEL
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THESE FACTORS COMBINE TO MAKE THE FINEST STEEL BALLS OBTAINABLE BECAUSE THEY CONTRIBUTE TO CLOSER SURFACE UNIFORMITY—BETTER STRAIN DISTRIBUTION—HIGHER LOAD CARRYING CAPACITY—LONGER LIFE

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Used in:
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IMPORTANT APPLICATIONS

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COOLIDGE
CORPORATION
BOX 488 • MIDDLETOWN, OHIO

Defense Facilities

(*Continued from page 520*)

Utica Drop Forge & Tool Corp., Yorkville, N. Y.
Aircraft parts—$46,710 (75)

Utility Tool & Die Mfrs., Inc., Pasadena, Calif.
Aircraft parts—$38,727 (80)

—V—

Vidomac Engineering, Inc., Culver City, Calif.
Aircraft parts—$53,470 (80)

Vulcan Engineering Co., Detriot, Mich.
Aircraft pilot models—$78,139 (70)
Aircraft pilot models—$70,000 (30)

—W—

W & B Tool & Engineering Co., Detroit, Mich.
Fixtures, gages and aircraft parts—$127,069 (70)

Western Screw Products Co., Lynwood, Calif.
Aircraft parts—$40,000 (45)
Aircraft parts—$60,224 (70)

Westinghouse Electric Corp., Trafford, Pa.
Aircraft pulleys—$425,000 (45)

Weston Electrical Instrument Corp., Newark, N. J.
Aircraft instruments—$379,332 (65)

Wheaton Brass Works, Union, N. J.
Aircraft parts—$18,933 (65)

The H. A. Wilson Co., Union, N. J.
Aircraft parts—$1,215,000 (40)

Wisconsin Motor Corp, Milwaukee, Wis.
Engines—$189,000 (65)

Wollensak Optical Co., Rochester, N. Y.
Aircraft parts—$271,361 (65)

Woodward Governor Co., Rockford, Ill.
Governors—$182,500 (65)

Worth Manufacturing Co., Los Angeles, Calif.
Aircraft parts—$32,735 (80)
Aircraft parts—$26,508 (40)

Wright Aeronautical Corp., Wood-Ridge, N. J.
Aircraft parts—$94,793 (65)

Wright Machinery Co., Durham, N. C.
Aircraft parts—$244,913 (65)

—Y—

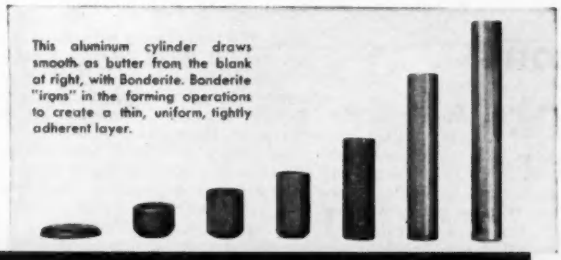
Yard-Man, Inc., Jackson, Mich.
Aircraft engine parts—$135,745 (80)

—Z—

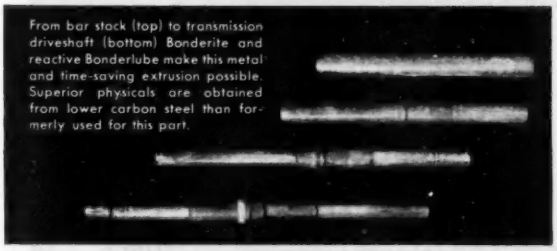
Zenith Plastics Co., Gardena, Calif.
Aircraft parts—$26,702 (65)

G.M. Engineer Cited for Vehicle Study

The Highway Research Board has conferred awards on two automotive engineers for their studies of the relationship between the characteristics built into vehicles by manufacturers and the public's use of them under traffic and highway conditions. The two recipients are T. J. Carmichael, administrative engineer of the General Motors Corp. Proving Ground, and C. E. Haley, project engineer for the Board's committee on vehicle characteristics.



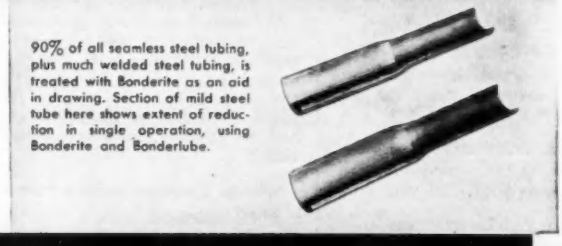
This aluminum cylinder draws smooth as butter from the blank at right, with Bonderite. Bonderite "irons" in the forming operations to create a thin, uniform, tightly adherent layer.



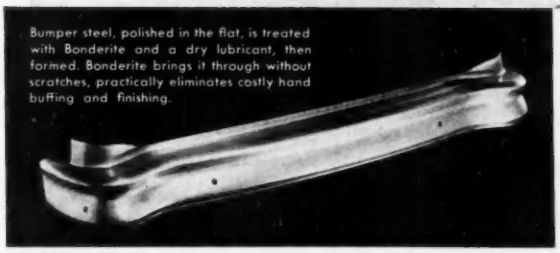
From bar stock (top) to transmission driveshaft (bottom) Bonderite and reactive Bonderlube make this metal and time-saving extrusion possible. Superior physicals are obtained from lower carbon steel than formerly used for this part.

Bonderite and Bonderlube, used in cold drawing of steel 50 caliber cartridge cases, speed production by allowing multiple pass operation and reducing the number of process anneals, and produce a superior product.

The coined blank is treated with Bonderite and Bonderlube. One extrusion forms this close tolerance gear, which possesses excellent physical properties.



90% of all seamless steel tubing, plus much welded steel tubing, is treated with Bonderite as an aid in drawing. Section of mild steel tube here shows extent of reduction in single operation, using Bonderite and Bonderlube.



Bumper steel, polished in the flat, is treated with Bonderite and a dry lubricant, then formed. Bonderite brings it through without scratches, practically eliminates costly hand buffing and finishing.

Bonderite and Bonderlube

LUBRICATION SYSTEMS FOR METALS SOLVE COLD FORMING PROBLEMS

Eliminate the friction between tools and work, provide proper lubrication between metal and dies, and you can cold form metals with amazing facility.

Bonderite and Bonderlubes provide this effective, positive lubrication for metals in cold forming operations.

With Bonderite and Bonderlubes, benefits are many and varied. Some tube mills (an industry which has used Bonderite in drawing for more than ten years) report over-all production increases of as much as 100%. Other industries report big labor and time savings because of minimum pickling, multiple pass operations, fewer process anneals. Metal savings are large because of extensive elimination of machining. Low alloy steel blanks may frequently be used, with desired physicals attained by the forming operations.

Parker, with more than a decade of experience in this field, offers you trained engineering and operational know-how. Learn how you can get the benefits of Parker's lubrication systems for your cold forming operations. Write today!

Get this FREE BOOKLET! Letterhead request brings informative technical bulletin, "Bonderite as an Aid in Cold Forming." Get your copy NOW!

Parker

PARKER RUST PROOF COMPANY

2178 E. Milwaukee, Detroit 11, Mich.

**Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.*

BONDERITE—corrosion resistant paint base • **BONDERITE** and **BONDERLUBE**—aids in cold forming of metals • **PARCO COMPOUND**—rust resistant • **PARCO LUBRITE**—wear resistant for friction surfaces

Controls . . . Inflation and Collapse!

(*Continued from page* 337)

amended . . . and ignored. Then Parliament repealed it on the grounds that such action was necessary "in the interest of the public welfare."

During the Dutch Revolution, when Antwerp was besieged by the Duke of Parma, the authorities of the beleaguered city promptly clamped price controls on almost everything within its walls — which may have been a stroke of genius from a political point of view; but which proved to be a fatal blunder from the standpoint of military logistics. Because prices were so low, the people inside the city consumed its stores both speedily and wastefully; and the people outside the city could not be induced to smuggle in new supplies for such a small reward. So Antwerp, by its own stupidity, blockaded itself far more effectively than the Duke of Parma ever could have.

Only in India, in fact, do we find a comforting glimmer of common sense. In 1770 a famine struck the province of Lower Bengal and the Government immediately instituted price controls. So the rice that remained from the previous harvest was quickly eaten; and fully one-third of the population starved to death before another crop could be grown. But sixteen years later, when famine again struck the province, the Government reversed its tactics. Instead of turning to controls, it deliberately encouraged speculation by publishing nationally the price of grain in every section of the country. Everyone knew where grain could be bought cheapest and sold most profitably; so supplies flowed promptly and naturally from the areas where food was most plentiful to the drought-stricken regions where it was most scarce—and disaster was averted.

"The Dirty Maximum"

Now there are some, of course, who might be unkind enough to say that another comforting glimmer of common sense was shown by the people of France during the French Revolution. The fixing of maximum prices had become one of the characteristic features of the Reign of Terror; but in this case it was the instigators of the controls who were ultimately put to death; and when Robespierre and his councilors were being trundled through Paris in the carts of the executioners, the street mobs jeered, and shouted, "There goes the dirty maximum."

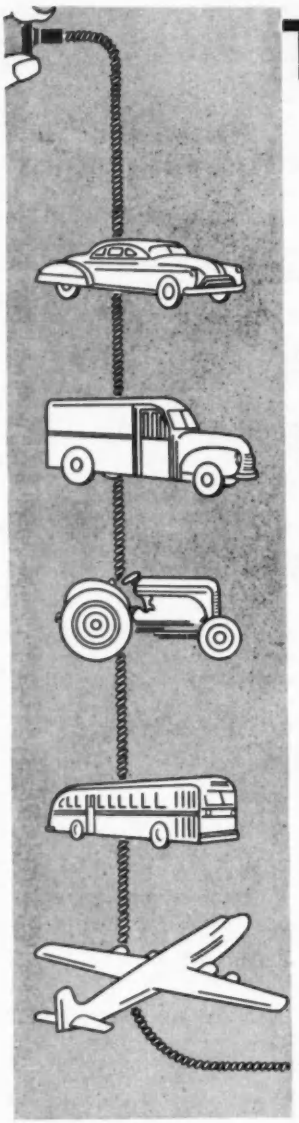
Here in America, our forefathers were fully alive to the lessons of history, and were far more ready than we to profit by experience. Price controls had been widely attempted on many occasions and in many of the colonies, but never with success, and in 1788 the American Continental Congress adopted a formal resolution which declared:

"It hath been found by experience that limitation in the price of commodities is not only ineffective for the purpose proposed, but likewise productive of very evil consequences, to the great detriment of the public service and the grievous oppression of individuals."

Inflation Continues Despite Controls

That statement is even truer today than it was when the Continental Congress originally made it. England, for example, has now established what is probably the most successful system of price controls this world has ever seen, and certainly no government in history has ever enjoyed a greater measure of compliance from its citizens. These controls have been in effect continuously for thirteen years, and they are still in effect today. Yet the latest information I can find on the subject discloses that prices in England have gone up exactly as far and exactly as fast as

(*Turn to page* 526, *please*)



TELEFLEX

CONTROLS give you these 6 ADVANTAGES

1 **EFFICIENCY**—Teleflex operates with high efficiency in both tension and compression.

2 **MINIMUM OF LOST MOTION**—Close tolerances held between Teleflex Cable and Conduit reduce snaking.

3 **UNLIMITED ROTARY MOTION**—Teleflex screw-type flexible Cable meshes with specially hobbed gears in Teleflex Control Boxes. Permits unlimited rotation of shaft at remote end.

4 **EASE OF INSTALLATION**—Teleflex Control systems are assembled at point of installation from standard Teleflex parts or from prefabricated assemblies.

5 **VERSATILITY OF INSTALLATION**—Teleflex flexible Cable and Conduit can be routed around obstructions and can be easily run through tight spots.

6 **MAINTENANCE ECONOMY** — Teleflex control systems require no periodic overhaul after installation.

Teleflex Engineering cooperation can simplify your remote control problems. For further information write for catalog 300A.

TELEFLEX INCORPORATED

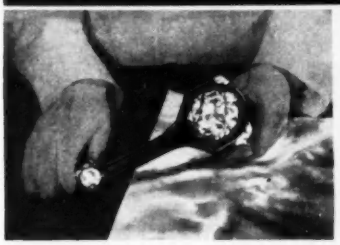
248 W. Wingohocking Street
Philadelphia 40, Pa.

MECHANICAL REMOTE CONTROLS

JAN-P-116 Packaging and Packing for Overseas Shipment. Methods of Preservation, May 1945 and amendment No. 2 December 1948 (Demonstrating Method 1A-1)

READ AND SAVE THIS ISSUE FOR FUTURE REFERENCE

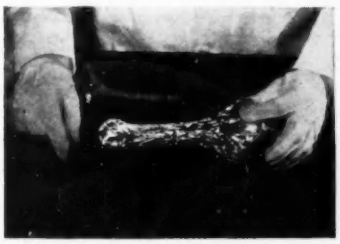
MILITARY PACKAGING SIMPLIFIED #2 of a series



1. After connecting rod has been thoroughly cleaned and preservative applied, fill voids and pad ears with aluminum foil to prevent inclusion of moisture laden air.

2. Place connecting rod on sheet of aluminum foil (JAN-B-148) and wrap in usual way. Deadsoft properties of aluminum foil eliminate spring-back and speed production.

3. Completed foil greaseproof wrap. Note how foil may be molded to conform closely to odd-shaped object, thereby helping to keep preservative in contact with part.



4. Apply a Grade C Overwrap. Be sure a liberal size sheet is used to insure a perfect wrapping job. Fold wrap over the two ends of connecting rod first.

5. Continue Grade C Wrap by folding sides over, using "locked" folds where possible and sealing folds with sealer. If single dip method is used attach de-humidified dipping cord*.

6. Completed package after wax-dipping by single dip method. Label applied prior to dipping. If dipping compound is opaque label should be applied after dipping. Clip cord close to surface. Before packing apply non-blocking overwrap.

*The use of an aluminum dipping cord (⅛"-¼"—.004 gauge) has been approved by Army Ordnance and prevents "wicking" normally found in cloth cords.

ALUMINUM FOIL IS SUPERIOR AS A CONFORMING TYPE WRAP BECAUSE . . .

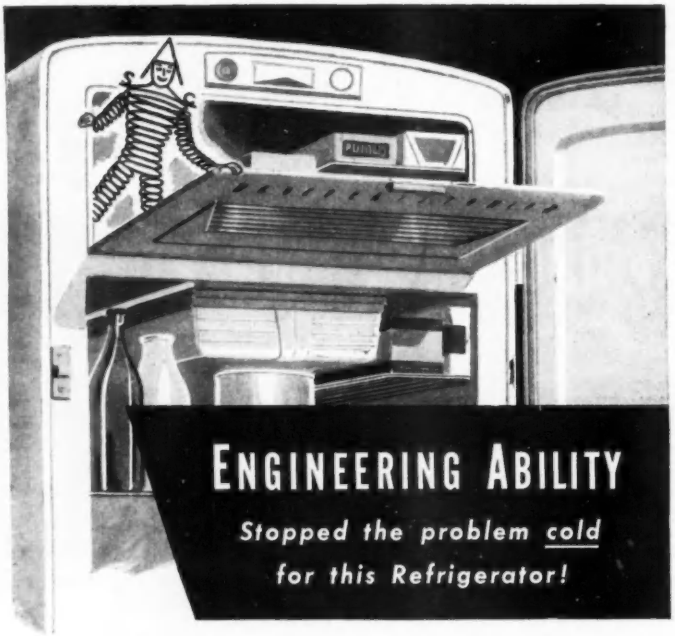
- ★ Aluminum foil is greaseproof on both sides.
- ★ Conforms tightly to any shape without taping or tying.
- ★ Easy to press out air that might contain moisture.
- ★ Non-absorptive; cannot wick off the preservative.

SEE REYNOLDS TRAVELING DEMONSTRATION OF MILITARY PACKAGING!

Government-specified methods of foil and laminated-foil packaging demonstrated with actual military products and parts. *Write for Coach Itinerary!* For expert help on any packaging problem, call the nearest Reynolds Sales Office and ask for the "Packaging Man." Or write direct to Reynolds Metals Company, General Sales Office, Louisville 1, Kentucky.

REYNOLDS ALUMINUM

"The Kate Smith Evening Hour" on Television, Wednesdays—Tallulah Bankhead in "The Big Show" on Radio, Sundays—NBC NETWORKS



. . . with Springs by Automatic Spring Coiling Co.

The need was very specific—

"Give us a spring," this refrigerator manufacturer requested, "that can THINK . . . so to speak. We have an evaporator door to the cold chest compartment that must respond to the touch of a finger, swing open to a certain angle, and stop there. It should also be possible to close the door with a nudge of a food-burdened housewife's elbow."

So . . . Automatic Spring Coiling Co. was called in and *Engineering Ability* came through!

The answer . . . calculated by our engineers . . was to design a spring with precisely the right *build-up*, with just the right combination of spring and wire diameter. In this way, not only would the spring do the required job—metering out its energy at the right rate—but also tolerances would be such that production could be handled with facility on our high speed equipment.

Put Automatic Spring Coiling Co. to work on *your* spring problem. See how members of our entire organization—consultants, designers, sample-makers, inspectors—swing into operation and *click*. Working as a well-integrated team with strict adherence to Quality Control we pledge ourselves to bring you the finest, most dependable springs to insure the successful and efficient performance of your product.

Our veteran consulting engineers are ready to survey your requirements without obligation. Please write.

AUTOMATIC SPRING COILING CO.
4048 West Thorndale Avenue
CHICAGO 30, ILLINOIS

Controls... Inflation and Collapse!

(*Continued from page* 524)

have prices in the United States where we have had a free market during most of this period.

For nine years, beginning with World War II, France also tried to stop inflation by the imposition of price controls; yet today the franc is worth only one-tenth as much as it was when that war began, and the cost of living has risen nearly twenty times as much as it has in the United States.

So the evidence is clear and overwhelming. Throughout forty centuries of human experience, price controls at their best have always been a miserable failure. At their worst, they have led to famine and to bloodshed; to defeat and to disaster!

Yet today we are being told again that only price controls can stop inflation. Now in the name of an all-wise and beneficient Providence, how blind can we be?

There is only one way to stop inflation, and that is to attack it at its source; and today the greatest source of inflation is the Bureau of Printing and Engraving at Washington, D. C. As long as our Government is unable or unwilling to live within its income . . . as long as it continues to pile up huge deficits as it has in seventeen of the past twenty-one years . . . and as long as it must finance those deficits by inflating the money supply, there will be no end to inflation in America. In short, until the Government balances its budget, the rest of us will never be able to budget the balance.

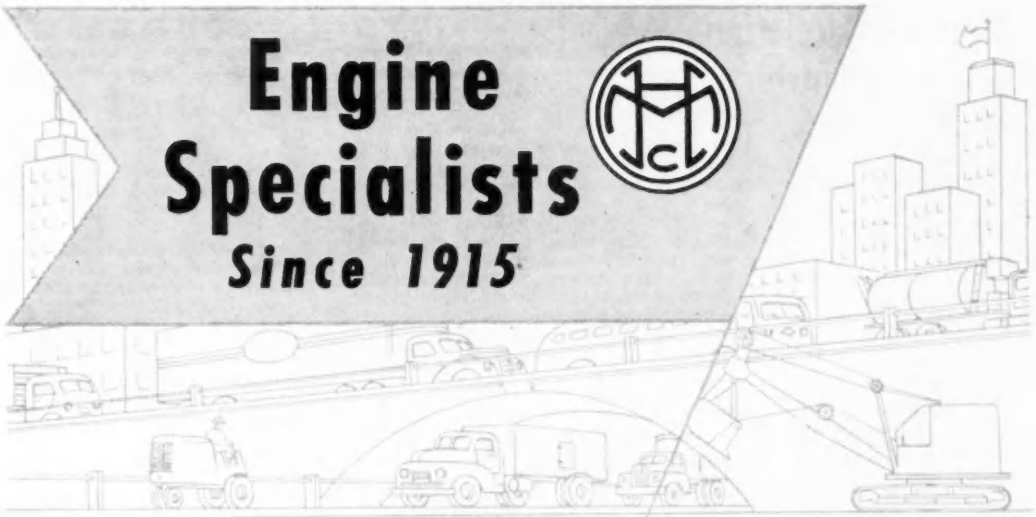
We are told, of course, that in these times of international crisis, the Government cannot live within its income; but that defeatist idea, to me, is simply unbelievable.

No government on earth has ever had such a fabulous income to spend. Up to the death of Franklin D. Roosevelt in the spring of 1945—seven years ago—there have been thirty-one Presidents of the United States, and these thirty-one Presidents had financed, in whole or in part, the cost of seven major wars—the American Revolution, the War of 1812, the Mexican War, the Civil War, the Spanish-American War, World War I, and all but the last three months of World War II. Yet during the Administrations of all of those thirty-one Presidents together — from George Washington to Franklin D. Roosevelt, inclusive — not as much money was taken from American taxpayers during this entire period of 156 years, as the Federal Government has collected in taxes in the last seven years. And I make that statement on the authority of Senator Harry Flood Byrd of Virginia—a Democrat.

But in spite of the lavish fashion in

(*Turn to page* 528, *please*)

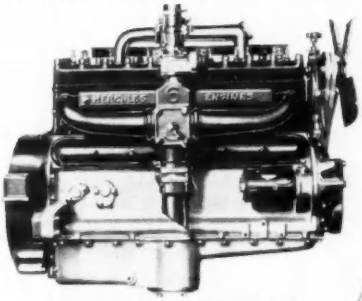
Engine Specialists
Since 1915



For over 37 years, Hercules engines have been providing economical and dependable power for American industry. The sound engineering and modern simplified construction of Hercules engines have earned an enviable reputation in the automotive industry by keeping operating and maintenance costs to a minimum.

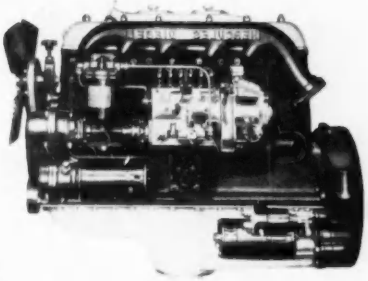
The complete line of Hercules engines, listed below, provides a wide selection of power for all automotive operations. Gasoline and L.P.G. engines are available in the 2 to 240 H.P. range. Where diesel engines are desired, Hercules offers 14 series and 29 models of diesel engines from 12 to 500 H.P. in both vertical and "pancake" arrangements.

For your main or auxiliary power requirements from 3 to 500 H.P.—gas, gasoline, or diesel—consult Hercules Motors Corporation—Engine Specialists since 1915.



Hercules Gasoline

HERCULES ENGINES
3 to 500 H.P.



Hercules Diesel

GAS AND GASOLINE ENGINES

Models	Bore & Stroke	Cu. In. Displ.
	2 CYLINDER	
BXB	2⅞" x 3"	39
NXA	3" x 4"	56.5
NXB	3¼" x 4"	66.3
	4 CYLINDER	
ZXA	2½" x 3"	59
ZXB	2⅝" x 3"	65
IXA	3" x 4"	113
IXB	3¼" x 4"	133
IXLB	3¼" x 4¼"	141
JX4E	3½" x 4¼"	164
JX4C	3⅝" x 4¼"	188
JX4D	4" x 4¼"	214
	6 CYLINDER	
QXA	3⅛" x 4½"	190
QXB	3¼" x 4⅛"	205
QXC	3⅜" x 4⅛"	221
QXD	3 7/16" x 4⅛"	230
QXLD	3 7/16" x 4½"	236.7
JXE	3½" x 4¼"	245
JXB	3⅝" x 4¼"	263
JXC	3¾" x 4¼"	282
JXD	4" x 4¼"	320
JXLD	4" x 4½"	339
WXC-3	4¼" x 4½"	383
WXLC	4" x 4¾"	358
WXLC-3	4¼" x 4¾"	474
TDXB	4⅜" x 5¼"	474
TDXC	4½" x 5¼"	501
RXB	4½" x 5¼"	501
RXC	4⅝" x 5¼"	529
RXLC	4⅝" x 5¼"	529
RXLD	4¾" x 5¼"	558
RXLDH	4¾" x 5¼"	558
HXB	5" x 6"	707
HXC	5¼" x 6"	779
HXD	5½" x 6"	855
HXE	5⅝" x 6"	935

Dual Carburetion

DIESEL ENGINES

Models	Bore & Stroke	Cu. In. Displ.
	2 CYLINDER	
DIXC	4" x 4½"	113.1
DIXD	4¼" x 4½"	127.5
	4 CYLINDER	
DIX4B	3¼" x 4"	133
DIX4D	3⅜" x 4"	166
DOOB	3¾" x 4½"	198.8
DOOC	4" x 4½"	226.2
DOOD	4¼" x 4½"	255
	6 CYLINDER	
DIX6D	3⅜" x 4"	248
DJXE	3½" x 4½"	260
DJXC	3⅝" x 4½"	298
DJXH	3⅝" x 4½"	298
DJXHF	3⅝" x 4½"	298
DWXC	4" x 4¾"	358
DWXD	4¼" x 4¾"	404
DWXLD	4¼" x 5"	426
DWXLDF	4¼" x 5"	426
DRXB	4⅜" x 5¼"	474
DRXC	4½" x 5¼"	529
DFXB	5" x 6"	707
DFXC	5¼" x 6"	779
DFXD	5½" x 6"	855
DFXE	5⅝" x 6"	895
DEXH	5¾" x 6"	935
DFXHF	5¾" x 6"	935
	8 CYLINDER	
DNX V8C	6" x 6"	1348
DNX V8D	6¼" x 6"	1468

HERCULES MOTORS CORPORATION, *Canton, Ohio, U. S. A.*

Controls... Inflation and Collapse!

(*Continued from page 526*)

which our Government in recent years has satisfied its unbridled appetite for more taxes, it faces in the present year another staggering deficit; and we are told that this deficit is unavoidable for two reasons: First, because taxes cannot safely be raised any further, which I devoutly hope is true; and second, because expenditures have already been "cut to the bone," which certainly is far from true.

In this connection, is may interest you to know that a salmon, swimming up the Columbia River to spawn, passes under the jurisdiction of twelve Federal agencies. And please remember this: The salmon spawns and ultimately dies; but the agencies—which also spawn—don't even fade away!

Representative Clarence Brown of Ohio—a Republican—has counted 75 different Government bureaus which deal with transportation, 65 of which compile statistics, 37 dealing with foreign trade, 34 with the acquisition of land, 22 with insurance, 15 with housing, 14 with forestry and six with business relations. Beyond that, he reports that there are 93 separate Federal agencies now lending Government money!

Other authorities report that the monthly payroll of the Federal Government is now nine times as big as it was twenty years ago, and that one out of every nine persons in our country now gets a regular monthly check from Washington.

Clearly, our Government can live within its income without undermining in any way the welfare and security of our people. Clearly, it must live within its income if it is NOT to undermine our entire economy. But clearly, it won't live within its income unless its aroused citizens, regardless of political affiliations, compel it to do so through the democratic processes at their command.

To exert that compulsion is the Number One task of the year for all of us in 1952; for inflation is certainly the most dangerous enemy that America faces today. The conquest of inflation is the most compelling and immediate duty of every American citizen.

The foregoing article was extracted from the address made by Mr. Olds at the recent Fiftieth Anniversary Dinner of the Salt Lake City Chamber of Commerce.

Test Cabinet

for SALT FOG CORROSION TESTS or HUMIDITY CORROSION TESTS

for Salt Fog Tests Meets the latest specifications of government and military authorities.

for Humidity Tests 95% to 100% relative humidity at room temperature to 125° F., temperature thermostatically controlled.

features

Lucite nozzle

Built-in heaters

Fully insulated

Exhaust flange at rear

Air-operated cover lifter (extra)

Standard size No. 1 INDUSTRIAL Salt Fog and Humidity Test Cabinet with air-compressor unit and air-operated cover lifter. Larger sizes are engineered to your requirements.

Write for complete information and recommendations

FILTERS Pressure Type · PUMPS Centrifugal · CORROSION TESTING APPARATUS Salt Fog • Humidity

INDUSTRIAL FILTER & PUMP MFG. CO.

5920 Ogden Avenue
Chicago 50, Illinois

RUBBER DIVISION Vulcanized Linings • Molded Products · WATER DEMINERALIZERS

French Vehicle Production Evidences a Distinct Rise

According to recent reports, French vehicle production of all types for 1951 totaled 446,760, an increase of 25 per cent over 1950. The total was made up of 320,315 passenger cars, 2279 buses and coaches, and 123, 824 trucks. Exports totaled 125,295 vehicles, of which 93,195 were passenger cars, 26,338 trucks, 1408 buses or coaches, and 4354 chassis, most of them for utility vehicles.

Twin Coach Anticipates Another Grumman Order

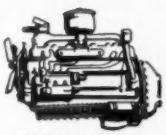
Twin Coach Co.'s Aircraft Div. is reported to be completing negotiations for another $25 million aircraft order with Grumman Aircraft Engineering Corp. The new order is said to call for the production of major parts for a new twin-engine Navy carrier plane. Production is scheduled to start late this year.

YOUR JOB IS CLEAR —GET IN THE SCRAP to keep steel coming

NON-FERROUS SCRAP is needed too!

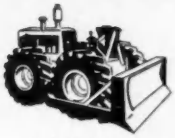
How to meet government specifications on

WINTERIZATION



DIESEL ENGINES

COMPRESSORS



BULLDOZERS

TRUCKS

GENERATORS

Put your problem up to the people who have been successfully meeting the toughest kind of winterization specification *continuously for 15 years.* And who can give you the direct benefit of experience gained in the design and production of over 100,000 winterization systems for all types of vehicles and equipment.

Suggestion: Send for the Perfection Winterization Data File. It's full of the kind of information you need. Or ask for a Perfection Engineer to call. Perfection Stove Co., 7376-B Platt Avenue, Cleveland 4, Ohio.

PERFECTION WINTERIZATION MAKES ENGINES GO AT 65 BELOW

PUSH BUTTON OPERATION

- Warms battery—more power for starting
- Heats internal engine parts
- Warms oil—keeps it fluid
- Heats cabs—warms personnel

ONE OF PERFECTION'S COLD ROOMS

Perfection has its own cold rooms (2) which are absolutely necessary for the design, development and testing of winterization systems to meet government specifications.

Perfection

What this COMPLETE LINE OF SPRAY PAINTING EQUIPMENT *means to you in times like these*

Here is a single source for everything you need for spray painting ...from a spray gun to a fully automatic finishing system.

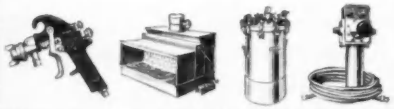
The completeness of this line eases your purchasing and delivery problems.

The standardization of Binks equipment gives you better protection against production delays and maintenance difficulties. Standard pipe threads are used on all Binks equipment...and many parts are interchangeable.

Every item in the Binks line is engineered to work in harmony with the others. When you choose Binks, you are buying guaranteed painting performance...for each unit is part of a tested and completely integrated spray painting system.

Get set for the future by getting acquainted with Binks complete line.
Write now for Catalog-Data Book No. 955, which gives information on the products and recommendations about their use to obtain best results.
Binks Manufacturing Company,
3120-30 Carroll Ave., West, Chicago 12, Illinois

Binks
EVERYTHING FOR SPRAY PAINTING



GUNS • SPRAY BOOTHS • MATERIAL TANKS • EXTRACTORS & ACCESSORIES

REPRESENTATIVES IN PRINCIPAL U. S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

Business Pulse

(*Continued from page* 418)

Free Markets Should Be Restored

Against this background, members of Congress have begun consideration of extension of the Defense Production Act which expires June 30. The deflationary tendencies of recent weeks are being cited by many observers as proof that the time has come to restore free markets for most commodities, if not all. The belief that the inflationary threat arising from rearmament has been surmounted is being voiced more frequently these days than at any time since the outbreak of Korean hostilities.

Within the circle of Government officials, however, such views do not appear to have gained wide support. Emphasizing that the main stress of rearmament still lies ahead and that present deflationary tendencies could be reversed at any time by a change of consumer spending patterns, Government spokesmen are insistent that controls must be retained. President Truman has repeated his request for a two-year extension of the present control law and for stronger regulatory powers. The consensus of those observers in touch with Washington affairs seems to be that Congress will extend the law but that the continuation is likely to be for one year rather than two. It is considered improbable that the Administration will be granted any broader regulatory power.

As hearings got under way in Congress during February on the President's record peace-time budget, a number of Government officials appeared before Senate and House committees to justify spending plans.

Robert A. Lovett, Secretary of Defense, told a Senate Appropriations subcommittee that any substantial reduction in the $52 billion scheduled for military outlay would jeopardize the security of the nation. In describing the present program as one that will keep the country on "the thin line of calculated risk" until the high point of defense output is reached in 1954, he said that the original plans of the military establishments had called for expenditures considerably in excess of $52 billion. He said that his own office, together with the Budget Bureau, had carefully examined the program and had eliminated all the "fat" and perhaps had even cut "a little into the muscle." Although implying that larger outlays would be desirable from the military point of view, he declared that "the three military departments recognize and fully accept the fact that the essential foundation of our military structure is a sound, vital and progressive economy."

(*Turn to page* 532, *please*)

(*Advertisement*)

NOW IT POWERS AMERICA'S FIRST 2½-TON DIESEL TRUCK

Another Major Milestone in GM Diesel Progress

AMERICA's first 2½-ton Diesel truck-tractor —the new GMC Series D 450-37—recently introduced by the General Motors Truck and Coach Division, is another important milestone in a march of progress started by General Motors a quarter-century ago.

As builder of the world's most widely used Diesel—the engine that does jobs no Diesel ever did before—Detroit Diesel Engine Division hails this latest advance by the world's largest producer of Diesel trucks.

Now, for the first time, the greater efficiency and economy of Diesel power are made available to thousands of haulers of medium-weight loads who have never had any choice but gasoline power in the past.

The engine that powers this sensational new truck-tractor is a 3-cylinder model of the famous General Motors Series 71 two-cycle Diesel engine that is now the favorite choice of Diesel truck and bus users.

Product of the experience gained by Detroit Diesel in building hundreds of thousands of General Motors Diesel engines—totaling more than 52,000,000 horsepower—the "3-71" is identical in principle and operation with the GM "4-71" and "6-71" engines powering larger trucks—many of which are still in use after more than a million miles on the road.

It is this same engine, in 2- to 24-cylinder single and multiple units, that has made Diesel power famous for economy in every type of power application—from giant shovels to road graders—from tractors to cotton gins—from oil drilling rigs to deep well pumps—from workboats to pleasure craft—from industrial locomotives to welding sets—from lumbering machinery to standby generators.

This wide usefulness results from General Motors' development of the two-cycle principle which makes possible smaller, lighter, more compact Diesel engines that are quick-starting, smooth-running, fast-accelerating, easy and economical to maintain.

Today—in addition to powering America's most popular Diesel trucks and buses—GM Diesel engines are offered as standard or optional power in more than 750 different models of equipment built by over 150 manufacturers.

Before you decide on power for any equipment you build or use—*for any job from 32 horsepower up*—you owe it to yourself and your customers to investigate the cost-saving advantages of General Motors Diesel power. Your inquiry will receive prompt, careful attention.

Single Engines . . . 32 to 275 H. P.
Multiple Units . . . Up to 800 H. P.

GM GENERAL MOTORS DIESEL POWER

DETROIT DIESEL
ENGINE DIVISION
General Motors • Detroit 28, Michigan

Business Pulse

(*Continued from page 530*)

Representatives of the Army, Navy and Air Force followed Secretary Lovett before the Senate committee. They also warned against cuts and said that the budget represents a balance of military and economic considerations. They described efforts made by the military branches to eliminate waste and, in an endeavor to impress Congress with the high cost of modern warfare, unveiled a number of complex weapons in the subcommittee chamber.

Wasteful Buying Practices

Meanwhile, an Armed Forces subcommittee in the House of Representatives was beginning to look into allegedly wasteful buying practices by the Armed Services. The subcommittee hearings, which were presided over by Representative Edward Hébert of Louisiana, were featured by many sharp exchanges. Chairman Hébert was particularly anxious to learn why certain purchases for the various military branches had not been centralized. Observing that a plan to consolidate clothing purchases had been recommended last August, he demanded to know what "phantom of the Pentagon" had been holding it up. A spokesman for the Munitions Board, though not able to explain the delay, assured the Chairman that action on the purchase plan would be forthcoming shortly.

One witness before the House subcommittee, Vice Admiral Charles W. Fox, chief of Navy material, defended the Armed Services against charges of waste. "We have been virtually charged, tried and convicted in the newspapers," he said. "This newspaper publicity is eating into the innards of American morale." Chairman Hébert took a different view of the matter. In replying sharply to Admiral Fox, he asserted that "a strategy discussion among high-ranking Pentagon officers was held to determine 'how to take the play away' from our disclosures of waste. The whole attitude is to confuse the issue and befuddle the American people . . . This committee," he continued, "is not going to stand idly by and see press conferences held by an army of alibi artists and propagandists in the Pentagon."

Budget Outlays Challenged

At the same time, other Congressional leaders were challenging President Truman's assumption that the budget outlays could not be reduced without jeopardizing "indispensable" programs.

Senator Harry F. Byrd of Virginia, chairman of the Joint Committee on Reduction of Non-Essential Federal Expenditures, outlined a plan for slashing some $8.6 billion—or about 60 per cent of the prospective deficit—from the budget plans for fiscal 1953. Among other things, Senator Byrd requested a $3-billion cut in the domestic-civilian category, the elimination of all further economic aid to foreign nations, a $100-million reduction in military aid (all in salaries and expenses), and a cut of $2.6 billion in proposed expenditures for the military establishment.

Senator Byrd, who contends that these reductions would not impair the defense program, declared that the proposed economies were the outcome of a careful study of nearly 300 functional items, more than fifty payments programs, and more than 500 payrolls in the budget. While the "Byrd Budget" is perhaps the most authoritative challenge to the President's proposals yet put forward, it has thus far received little attention in the press.

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Thorough and complete attention by the entire Johnson Tappet organization to these important working parts of your engines assure you of maximum tappet life and performance.

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MUSKEGON, MICHIGAN

YOUR JOB IS CLEAR —GET IN THE SCRAP to keep steel coming

NON-FERROUS SCRAP is needed too!

County by County . . . City by City

WRING THE MOST OUT OF YOUR MARKETS

POLK MARKET VALUATION INDEX

Here is the newest sales tool for the aggressive merchandiser—complete county and city counts of all car and truck registrations in the U.S., as of December 31, 1951, prepared on forms which permit you to write in your own sales totals, number of outlets, advertising appropriations, expected sales this year, and other valuable data for direct comparisons.

Investigate this source information that permits you to visualize your entire sales picture for every sales area in the country. Know instantly whether you are getting your share of the market for any automotive product, accessory, after-market device, or service. Write, wire or telephone for information on the brand new Polk Market Valuation Index.

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WHAT'S NEW AT THE

Chicago **ASTE INDUSTRIAL EXPOSITION** March 17 to 21

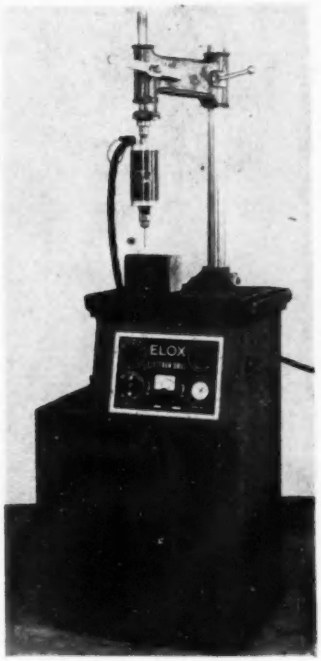
For additional information regarding any of these items, please use coupon on page 416

(*Continued from page* 411)

ASTE-10 **Booth—318**

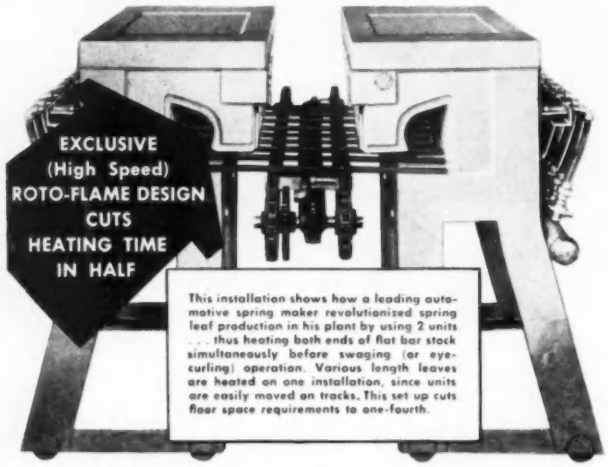
Electron Drill

Elox Corp., Clawson, Mich., will exhibit a complete line of Electron Drills. Among this equipment, designed for the removal of broken taps and drills, plus being capable of drilling either round or shaped holes in metal, will be the latest Elox drill, Model 51. Electron Drills work on the principle of creating a series of intermittent arcs which disintegrate or vaporize metal. Due to new improvements in this equipment—Elox now guarantees the complete removal of 8/32-in. taps in less than four min. and 3/16-in. drills require only six min. for removal. M-51, which is 14 in. by 16 in. overall, uses 110-v, 60-cycle current.



Elox Electron drill, Model 51.

You Can Double End Heating Output on Bar Stock with G.A.S. ROTO-FLAME FURNACE


EXCLUSIVE
(High Speed)
ROTO-FLAME DESIGN
CUTS
HEATING TIME
IN HALF
This installation shows how a leading automotive spring maker revolutionized spring leaf production in his plant by using 2 units . . . thus heating both ends of flat bar stock simultaneously before swaging (or eye-curling) operation. Various length leaves are heated on one installation, since units are easily moved on tracks. This set up cuts floor space requirements to one-fourth.

Boosts Production. Steps up output through much faster heating . . . provides a uniform controlled flow of work at a uniform temperature.

Cuts Operating Costs. Requires less labor, operation can be made 100% automatic . . . saves fuel, no wasted heat . . . saves floor space . . . prolongs die life by virtually eliminating scale.

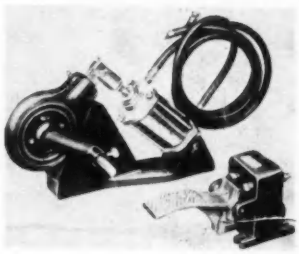
Provides Better Working Conditions. Exclusive design deflects heat away from operator and onto the work . . . cleaner—utilizes any type of gas fuel.

Just as the Roto-Flame Furnace has increased production efficiency for this well-known spring manufacturer, it can do the same for you . . . whether end heating is required for forging, swaging, upsetting, threading, hardening, or annealing. Ask for Bulletin No. 350.

GAS APPLIANCE SERVICE, INC.
Industrial Gas Engineers
1221 WEBSTER AVENUE • CHICAGO 14, ILLINOIS

ASTE-11 **Booth—433**

Machine for Ferrule Contracting



An air-operated ferrule contracting machine No. 1765 for the production of uniform, fitted hose lengths, will be shown by A. Schrader's Son, Div. Scovill Mfg. Co., Inc., Brooklyn, N. Y. Interchangeable dies enable the machine to be set up for various size ferrules. Foot pedal operation permits the use of both hands to feed and remove the work.

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WHAT'S NEW AT THE

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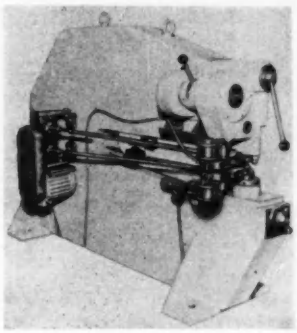
(Continued from page 534)

ASTE-12 **Booth—1943**

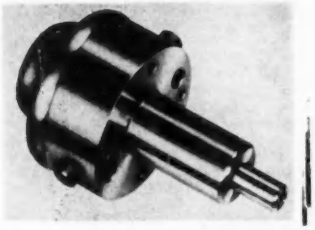
Power Feed on Sheet Working Machines



Developed because of repeated requests, the American Pullmax Co., Inc., Chicago, Ill., has designed a power feed for use on the Pullmax Major, Model P-5 and Model D-3 to aid in cutting and working steel plate up to 11/32-in. thick. This device can be used for cutting disks and circles on a production basis.

ASTE-13 **Booth—2029**

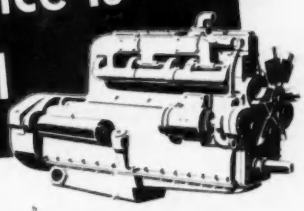
Automatic Reversing Pump

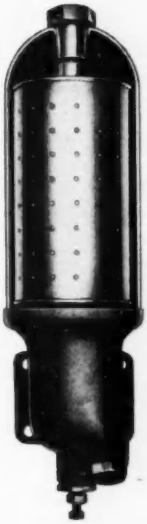


One of the highlights of the Tuthill Pump Co., Chicago, Ill., display will be the Model RF automatic reversing pump. Measuring 2½ in. OD. by 4¼ in. long, Model RF provides a compact unit of the automatic reversing type which delivers a constant flow from the same port regardless of the direction of shaft rotation. It is especially suited to lubricating and hydraulic service in connection with machine tools and attachments. Available in three sizes in capacities up to two gpm and pressure ranges to 200 psi maximum. Other features include external and/or internal porting, ring or flange type mounting.

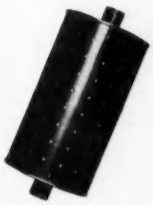
(Turn to page 536, please)

When Engine Performance Is Doubly Vital





Cut-away view shows location of filter element in filter housing.



To insure maximum efficiency and protection, always use Michiana Replaceable Elements.

Select Engineered Oil Filters

● No matter for what important purpose engines are used today – good oil filters are doubly important to –

- Save Oil
- Prolong engine life
- Prevent needless early parts repairs or replacements
- Save man-hours of scarce labor

MICHIANA Engineered Oil Filters have for many years proved that they accomplish the important savings mentioned above. Year by year they are used by more and more engine and engine-driven equipment makers—and the more exacting the task, the more the growing preference for MICHIANA Engineered Oil Filters is emphasized. Made for gasoline, diesel and gas engines of all capacities.

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Michigan City, Indiana

MICHIANA OIL FILTERS

WHAT'S NEW AT THE

Chicago ASTE INDUSTRIAL EXPOSITION March 17 to 21

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(Continued from page 535)

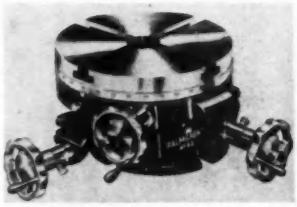
ASTE-14 Booth—310

Rotary Table with Dual Cross-Feed

A rotary table with full 360 deg rotary movement and four-in. cross-feed travel was recently announced by the Chicago Tool and Engineering Co., Chicago, Ill. Known as the Palmgren No. 83, it has a circular table eight-in. in diam with a ⅝ in. by 1⅛ in. "T" slot. The table is graduated for the full 360 deg by single degrees in right-angle segments. An adjusting screw permits setting to any position.

The four-in. cross-feed movement, which provides a two-in. travel each way from center, is controlled by another graduated screw that permits infinite adjustment within the travel range. All graduation markings are permanently cut into the material.

The base has four bolt and key slots for mounting of the table to a milling machine, drill press, shaper, or surface grinder.



Chicago Tool rotary table, No. 83.

Proved RELIABILITY

Lamb Electric

SPECIAL APPLICATION FRACTIONAL HORSEPOWER MOTORS

Over the years, reports from many users of products and devices powered with Lamb Electric Motors have emphasized the trouble-free operation of the motor.

Reliability, a prime requisite for successful product operation, is assured in Lamb Electric Motors because (1) the motor is designed for the specific application, (2) it is built of quality materials to the highest manufacturing standards, (3) it embodies 36 years' experience in the small motor field.

Thorough dependability is one of the reasons why Lamb Electric Motors are used by leading manufacturers. *The Lamb Electric Company • Kent, Ohio.*

THEY'RE POWERING AMERICA'S *Finest* PRODUCTS

Series motor suitable for many intermittent duty applications where space and weight are important considerations.

Having inbuilt control switch and receptacle, this motor is readily adaptable to portable tools and equipment.

Lamb Electric

SPECIAL APPLICATION FRACTIONAL HORSEPOWER MOTORS

ASTE-15 Booth—1708

Counterbore Set

The Continental Tool Works Div., Ex-Cell-O Corp., Detroit, Mich., will feature this counterbore set among several other new items. Special cutting tools and broaches for jet engine manufacture will be on display, and these will include pinetree form broaches for machining slots in turbine wheels, and carbide tiped form milling cutters for milling the airfoil form of jet blades.

ASTE-16 Booth—1516

Precision Lathe

The Hardinge Brothers, Inc., Elmira, N. Y., Model HLV lathe for tool room and production work will be shown in operation. An independent variable feed for carriage and cross slide is utilized. An independent variable speed is used for the head-stock spindle to secure speeds within the range of 125 to 3000 rpm.

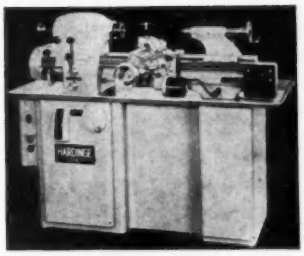
(Turn to page 537, please)

WHAT'S NEW AT THE

ASTE INDUSTRIAL EXPOSITION

For additional information please use coupon on page 416

(*Continued from page 536*)



Hardinge lathe, Model HLV.

Specifications

Variable Spindle Speeds:	125 to 3000 rpm
Power Feed Range:	¼ to 7 ipm
Collet Capacity:	Round—1"; Hexagon—⅞"; Square—¾"
Swing (over bed):	11"
Overall Dimension:	Height 50"; Length 63"; Width 30"
Weight:	1250 lb

Precision gear-box and lead screw reserved for threading only so the original accuracy of the gear box and lead screw is sustained for threading operations.

The Hardinge model HLV uses a solid rectangular carriage riding on hardened and ground steel dovetail bed ways.

ASTE-17 **Booth—733**

High Pressure Air Gage

Federal Products Corp., Providence, R. I., will exhibit its latest type of high pressure air gage, the Dimensionair. This product will be exhibited under actual production conditions.

(*Turn to page 538, please*)

Getting the "low down" on higher production

SIMONDS ABRASIVE CO.

Grinding Wheels

Production troubles "took off" when the grinding department took on Simonds Abrasive Company wheels. No more bottlenecks. No pile-up of rejects. No backlog of DO's clamoring to be filled. Why? Because there is a Simonds wheel right in grain and grade for every grinding job. You'll find the right answer to *your* grinding problems in Simonds Abrasive Company's complete line, including grinding wheels of all shapes and sizes, mounted wheels and points, segments and abrasive grain . . . top quality products made by Simonds Abrasive Company, a major manufacturer of grinding wheels for almost 60 years. Send for free data book and name of your Simonds Distributor.

SIMONDS ABRASIVE CO. PHILADELPHIA 37, PA. BRANCH WAREHOUSES: CHICAGO, DETROIT, BOSTON
DISTRIBUTORS IN PRINCIPAL CITIES

Division of Simonds Saw and Steel Co., Fitchburg, Mass. Other Simonds Companies: Simonds Steel Mills, Lockport, N. Y., Simonds Canada Saw Co., Ltd., Montreal, Que. and Simonds Canada Abrasive Co., Ltd., Arvida, Que.

For additional information regarding any of these items, please use coupon on page 416

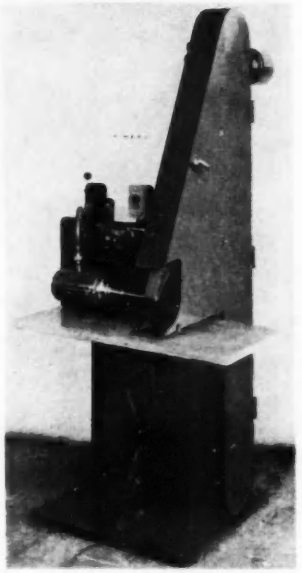
(*Continued from page 537*)

ASTE-18 **Booth 400**

Abrasive Belt Grinder and Polisher

Vonnegut Moulder Corp., Indianapolis, Ind., will show its Marschke, Model HS 168, pneumatically tensioned abrasive belt grinder and polisher. For off hand metal cleanup and polishing operations on small work-pieces, this machine utilizes small diameter contact wheels for access to relatively small concave contours in combination with standardly acceptable belt speeds.

The idler wheel at the top of the machine supplies the belt tension by means of accurately controlled pressure of an air cylinder coupled to the idler yoke. Pulley of the 3450 rpm drive motor is selected to develop 5000 sfpm belt speed so that the contact wheel spindle is turning at approximately 30,000 rpm when fitted with a ⅝-in. diam. wheel. The spindle is fitted with precision preloaded ball bearings. Belt length is 168 in.



Vonnegut abrasive belt grinder and polisher, Marschke Model HS 168.

PALNUT LOCK NUTS
TRADE MARK

for quick, secure fastening at low cost

PALNUT Lock Nuts are single thread nuts, made of spring tempered steel and accurately formed to fit standard screw threads. Unfailing double-locking action holds tight under vibration. High speed assembly with hand or power tools. Cost less than most other locking methods.

Regular Type PALNUT Lock Nuts

Widely used on:

Connecting rods, main bearings, transmission housings, hand brakes, engine mountings, radiators, shock absorbers, brake parts, etc.

POPULAR AUTOMOTIVE SIZES

Type of Palnut	Size	Width Across Flats	Height	Palnut Part No.
Regular	¼"—28 N.F.	7/16"	.119"	14L28
Regular	5/16"—24 N.F.	½"	.129"	516L24
Regular	⅜"—24 N.F.	9/16"	.140"	38L24
Regular	7/16"—20 N.F.	5/8"	.150"	716L20
Regular	½"—20 N.F.	¾"	.172"	12L20
Regular	5/16"—18 N.C.	9/16"	.138"	516R18
Regular	⅜"—16 N.C.	5/8"	.156"	38R16

Other Type PALNUT Lock Nuts

POPULAR AUTOMOTIVE SIZES

Type of Palnut	Size	Width Across Flats	Washer Diameter	Height	Palnut Part No.
Washer	#10—32 m.s.	5/16"	½"	.166"	10M32E
Washer	#10—24 m.s.	5/16"	½"	.218"	10M24D1
Washer	#10—24 m.s.	5/16"	⅝"	.246"	10M24D2
Washer	#12—24 m.s.	5/16"	⅝"	.220"	12M24D-12
Washer	¼"—20 N.C.	7/16"	11/16"	.239"	14R20D
Washer	¼"—20 N.C.	7/16"	11/16"	.271"	14R20D1
Acorn	#8—32 m.s.	11/32"		.297"	8M32C
Acorn	#10—24 m.s.	5/16"		.328"	10M24C
Acorn	¼"—20 N.C.	7/16"		.380"	14R20C
Wing	#10—24 m.s.	7/16"*		.375"	10J24
Wing	¼"—20 N.C.	1"*		.400"	14J20

* Extremities—Wing to Wing.

Widely used on:

Molding strips, ornaments, nameplates, medallions, instrument assemblies, glove compartments, light sheet metal assemblies, etc.

Washer Type

Acorn Type

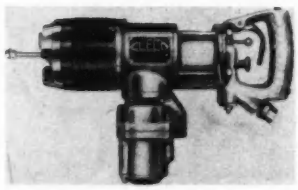
Wing Type

• *Send for Catalog No. 573 showing complete range of sizes on all PALNUT Lock Nuts. Free samples sent on request.*

THE PALNUT COMPANY
60 Cordier Street, Irvington 11, N. J.
Detroit: 730 West Eight Mile Road

ASTE-19 **Booth—413**

Air-Powered Countersinking Tool



Among the tools to be shown by the Cleco Div., Reed Roller Bit Co., Houston, Texas, will be an air tool for countersinking holes. The tool is self-supporting, and has two controls, one for clamping the tool to the work and one for rotation. A built-in micrometer provides adjustment for the standard bayonet-type countersink. A built-in lubricator is used. Mandrels for varying hole diameter and countersinks can be changed without dismantling the tool.

(*Turn to page 539, please*)

WHAT'S NEW AT THE

ASTE INDUSTRIAL EXPOSITION

For additional information please use coupon on page 416

(Continued from page 538)

ASTE-20 **Booth—441**

Grinding Wheel

Manhattan Rubber Div., Raybestos-Manhattan, Inc., Passaic, N. J., will feature Moldisc, a grinding wheel for portable equipment. Made from several bonds specially compounded for the particular applications for which they are intended, the wheels can be used on mild steel, stainless alloys, aluminum or copper. They can be used for roughing and fininishing applications. Moldiscs are supplied in a standard seven-in. diam, ¼-in. in thickness and ⅞-in. hole.

Manhattan grinding wheel, the Moldisc.

ASTE-21 **Booth—1723**

Milling Cutter

Kennametal Inc., Latrobe, Pa., has introduced an improved milling cutter, Style KF Kennamill, designed primarily, for steel production milling runs where adequate horsepower is available, and where intermittent or narrow cuts are encountered. It is also suited for heavy cast iron cutting.

The KF Kennamill has four different parts: Body, blades, wedges, and nuts. Stud-type wedges and screws are one-piece high-alloy steel, hardened and ground to close tolerances. They re-

(Turn to page 540, please)

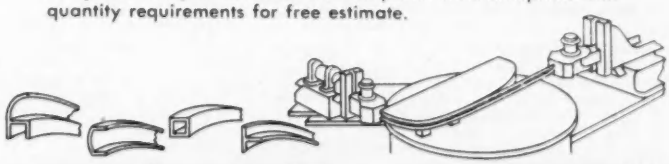
Now BATH
WILL STRETCH-FORM
your intricate metal shapes

Any { METAL
CROSS-SECTION
QUANTITY

Complex metal shapes required by modern aircraft production can be stretch-formed to exacting tolerances. Jet flange rings, shrouds, cases, flame tubes, stiffeners and casings in either full circles or segments can be produced from the new tough alloys developed for jet aircraft.

In addition, Bath stretch-forming technique provides increased strength with reduced weight. Forming single or compound curves, constant or varying radii, and bends of more than 360 , this process produces complex parts in single piece.

Let Bath's 10-years' experience in forming aircraft components aid you in the production of difficult parts. Send blueprints and quantity requirements for free estimate.



504 CY

THE CYRIL BATH COMPANY

6915 Machinery Avenue • Cleveland 3, Ohio

WHAT'S NEW AT THE

Chicago **ASTE INDUSTRIAL EXPOSITION** March 17 to 21

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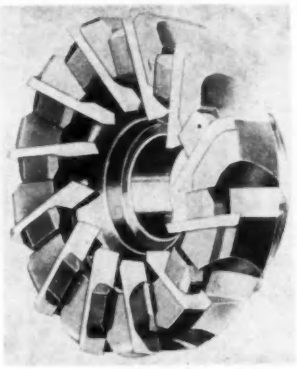
(*Continued from page* 539)

main assembled to the cutter body at all times. Blades are heavy, solid, wedged-in.

Blades are interchangeable in all slots of any size of cutter body of the same type. Wedges are round and are interchangeable in any slot of any size cutter, either right- or left-hand.

Other features of this cutter include: Mountable on any common spindle; ample wedge clamping area; adequate wedge width tolerance to allow for wear on the wedge and cutter body blade slot wall; chip clearance room for heaviest cuts; wedges can be pulled up without movement of blades; blades are advanceable in direction of cut and can be set to precise tolerances.

The Style KF Kennamill is made in four cutting diameters: Six in., eight in., 10 in., and 12 in., either right- or left-hand.



Kennametal Style KF Kennamill.

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Learn How *Roto-Finish* Can Solve your Finishing Problems at Lower Costs

Here's a new, fully illustrated catalog that shows you how you can improve the surface of your products at lowest costs with Roto-Finish, an original precision tumbling process. Learn how you can save money and manpower with Roto-Finish's wide choice of machines, equipment and materials that combine with Roto-Finish's Engineering Service and "know-how" to give you a practical solution to your finishing problems. Prove it to yourself. Write for your free copy today.

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associated with The Sturgis Products Co.
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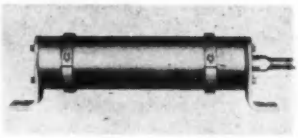
P.O. Box 988 — Phone 3-5578

FOREIGN REPRESENTATIVES: CANADA — Windsor — Roto-Finish Canada Limited • ENGLAND — London — Roto-Finish Limited — 39 Park Street — Mayfair • AUSTRALIA — Melbourne — A. Flavell Pty, Ltd. • HOLLAND — Delft — N. V. Roto-Finish Maatschappij — Rotterdamse — WEG 370A • AUSTRIA, GERMANY, SWITZERLAND — Frankfurt a.M. — Metallgesellschaft A.G., Germany • ITALY — Milan — Societa Roto-Finish a R.L. — Sesto S. Giovanni — Viale E. Marelli 31 • FRANCE — Paris — Societe Roto-Finish, 70 rue de la Republique-Puteaux (Seine) • BRAZIL — Rio de Janeiro — Commercial E. Industrial de Formos Werco, Ltds.

ORIGINATORS OF THE ROTO-FINISH PROCESS

ASTE-22 **Booth—1016**

Air Cylinders



Industrial Products Div., Westinghouse Air Brake Co., Wilmerding, Pa., is introducing at the show a 15 hp size "Y" air compressor unit and this complete line of pneumatic cylinders. The cylinders will be supplied in a wide variety of sizes, strokes and mountings. They are streamlined and have a cushioning feature, Wabco packing and a general compactness that reduce installation area.

ASTE-23 **Booth—337**

Chilling Machine

An industrial chilling machine for smaller capacity users, has been announced by Sub-Zero Products Mfg. Div., Deepfreeze Distributing Corp., Cincinnati, Ohio. The model, Sub-Zero W-120, has a capacity of five cu. ft., and will maintain temperatures as low as 120 deg. below zero. At this temperature it will remove 500 Btu's per hr.

(*Turn to page* 541, *please*)

WHAT'S NEW AT THE

ASTE INDUSTRIAL EXPOSITION

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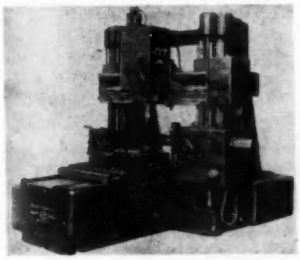
(*Continued from page* 540)

ASTE-24 **Booth—1917**

Jig Boring and Milling Machines

An advance in the design of the large optically set Sip jig boring and milling machines Hydroptic-7P and 8P has been announced by the American Sig Corp. Viewing screens, on which the graduation lines of the built-in standard scales are optically projected with a large magnification, are substituted for the former microscope eyepieces.

The screens are built into the bed and the crossrail and also into the horizontal head on the Hydroptic-8P. They have a rectangular surface illuminated by green light. In the field is a movable reticle the position of which is controlled by the micrometer drum.



American Sip jig boring and milling machine, Hydroptic.

ASTE-25 **Booth—1926**

Combination Drilling and Tapping Machine

A combination drilling and tapping machine arranged with a No. 10A tapping head and a No. 10 reaming head and a No. 13 indexing fixture mounted on a special base, will be exhibited by Kaufman Mfg. Co., Manitowoc, Wis.

Both heads are arranged for single spindle drilling and tapping or reaming and threading. Standard flanges are provided on the quills to allow the mounting of multiple heads to accommodate as many spindles as might be required for single work piece or a variety of work pieces. Drive is obtained through vee-belts to a six-speed transmission on the reaming head and

(*Turn to page* 542, *please*)

You take *your* choice in engines, *your* choice in type of mounting, *your* choice in *blading* for specific performance characteristics, when you work with Twin Disc Hydraulic Torque Converters.

For the *three* basic series of Twin Disc Converters covers the entire range from 40 hp to 1,000 hp. Within each series, there are *seven* variations in blading alone. And four types of output ends.

In input ends, you have your choice of:

1. **Direct mounting.**
2. **Independent mounting.**
3. **Clutch type converter.**
4. **Direct drive-BRAKING FEATURE converter.**

There are other *standardized* combinations, too, for any standardized industrial engine where a torque converter is desirable.

Write today for 16-page Bulletin No. 135-D on Twin Disc Hydraulic Torque Converters. It contains curves and diagrams which will help you make a preliminary choice of exactly the right converter for your application . . . will help you find the converter that lets *you* take *your* choice.

Center: Clutch-type Converter.
Below: Converter with Chain Housing.
Top: Direct Drive Braking Feature Converter.

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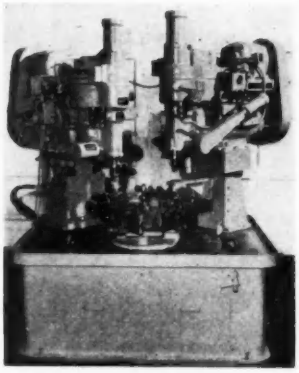
(Continued from page 541)

through cone clutches running in oil on the tapping head.

The indexing mechanism is arranged for four divisions, but can be provided with any number of divisions required. The fixture has sliding work holders indexed to two different positions to drill and tap two holes consecutively.

Adjustment is provided for variations in work heights with the aid of a raising screw for each head.

The machine is pneumatically operated and controlled including the index. Ample coolant and chip space is provided in the base of the machine. The heads can be powered with either three or five hp. motors depending upon the requirements.



Kaufman combination drilling and tapping machine.

40 Trillion

Fasco Hydraulic Stoplight Switch

That's about the number (within a trillion or two either way) of times Fasco Stoplight Switches have shown that brakes were being applied.

In its other Automotive products . . . Automatic Reset Circuit Breakers, Series 400 Pressure Switches, Directional Signal Flashers . . . Fasco dependability is equally appreciated in the automotive industry. If you're not using all Fasco's products, look into their advantages for you.

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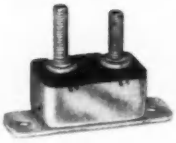

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ROCHESTER 2, N. Y., U. S. A.

ASTE-26 **Booth—1912**

Tapping Chuck

A new type tapping chuck, adaptable to both drilling and tapping, will be exhibited by the Tri-State Machinery Co., Pittsburgh, Pa. The proper slipping torque, when bottoming taps, is said to be automatically provided for. Adapters are of the quick-change type which will hold either drills or taps. Register points on specific adapters are said to automatically provide the proper torque for any given size tap up to one-in.

ASTE-27 **Booth—1843**

Drawn Shell Trimmer

The recently developed Model ST-2 drawn shell trimmer will be shown by Dayton Rogers Manufacturing Co., Minneapolis, Minn. Designed to trim square or rectangular shells with small corner radii, the machine is also said to be capable of trimming round shells of practically any diameter or depth as well as bead, knurl and form many types of drawn shells. It can trim shells up to 0.093-in. thick in cold rolled steel

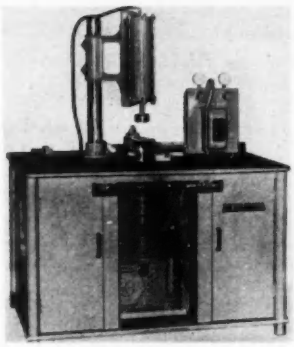
(Turn to page 543, please)

For additional information please use coupon on page 416

(*Continued from page* 542)

and 0.063-in. thick in stainless steel.

In operation, the internal cutter and profile mandrel are mounted on the driven work spindle. The external cutter is then adjusted for vertical height to allow normal clearance between the two cutting edges similar to an ordinary blanking die. The shell is then placed on the mandrel and is held in working position by a vertical air operated cylinder.



Dayton Rogers drawn shell trimmer, Model ST-2.

ASTE-28 **Booth—410**

Carbide-Tipped Milling Cutter

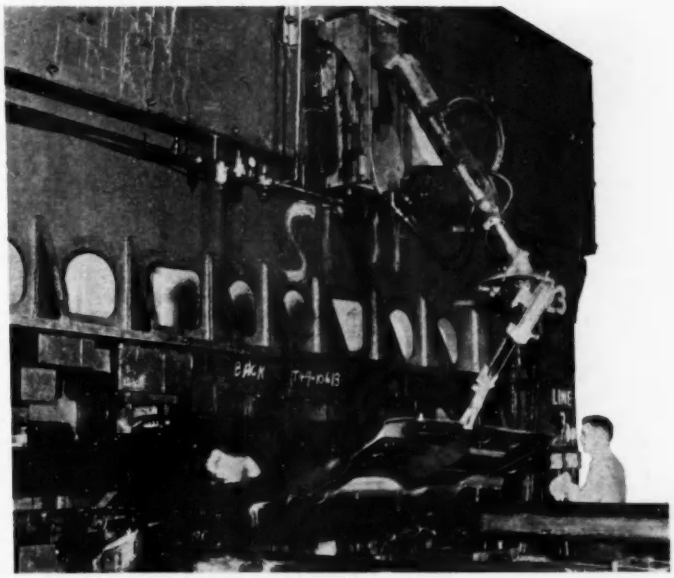
Highlighting the Nelco Tool Co., Manchester, Conn., exhibit will be an addition to the firm's line of carbide-tipped side milling cutters. Nelso will show Stagger-Tooth side milling cutters with Tri-Helix tooth design. Carbide-tips with Tri-Helix grind are said to fold the chips away from the work. Stagger-Tooth, Tri-Helix cutters for cutting slots over ¾-in. wide and standard to 1⅜-in. wide are available.

ASTE-29 **Booth—1215**

Wet Blasting Machine

To be shown by the American Wheelabrator & Equipment Corp., Mishawaka, Ind., is the Model 43 Liquamatte wet blasting machine. Designed for the

(*Turn to page* 544, *please*)



Kaiser-Frazer doubles output, halves manhours with "iron hands"

Manual handling of floor pan stampings through three large presses produced 125 pieces per hour at Kaiser-Frazer Corporation. With Sahlin "Iron Hand" automatic unloaders and conveyors, production jumped to 288 pieces per hour. Output of the press line more than doubled; manhours per piece were cut at an even faster rate.

You, too, can depend on automatic unloading by the Sahlin "Iron Hand" to help you three ways:

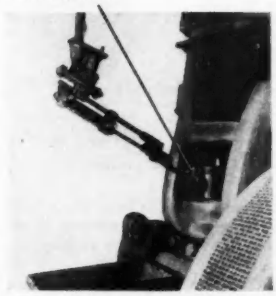
INCREASE PRODUCTION by taking advantage of maximum press speed;

CUT COSTS by allowing transfer of workers to other jobs;

IMPROVE SAFETY by eliminating possibility of accident (steel jaws replace human fingers).

Hundreds of Sahlin unloaders are used in leading plants in the United States, England, France and Australia. If manual handling retards your production...causes accidents...keeps costs high, you owe it to yourself to investigate *automatic* handling. You'll find an "Iron Hand" and gripping jaws for almost every unloading condition. Start today by writing for your copy of our new eight-page catalog.

UNLOADS STAMPINGS AS SMALL AS THIS BRACKET.



Besides eliminating a hazardous unloading operation at Deluxe Stamping Company, Hazel Park, Michigan, the "Iron Hand" increased production 25% — to 1000 stampings per hour.

sahlin
engineering company
267 Ferndale Street, Birmingham, Michigan

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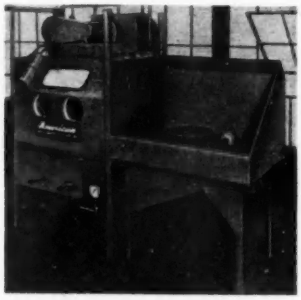
(*Continued from page* 543)

cleaning and finishing of close tolerance parts, the unit is said to be capable of holding tolerances of 0.0001 in. where required. The machine is a self-contained package unit. A new vertical pump design used with the Model 43 is claimed to overcome packing leakage, shaft wear and plugging troubles. Inside cabinet design permits all abrasive to be completely removed without carry-over to interfere with the next operation.

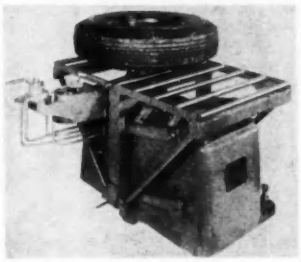
Typical applications of this machine are: Removing heat treat scale, surface cleaning and deburring; finishing and redressing dies; preparing surfaces for plating and other coatings; special surface finishes; blending grinding lines; prolonging tool life; and general maintenance cleaning.



American Wheelabrator wet blasting machine, Model 43 Liquamatte.

ASTE-30 **Booth—818**

Air-Operated Balancing Machine



An air operated conveyorized balancing machine will be displayed by Micro-Poise Engineering & Sales Co., Detroit, Mich. This unit, features a single air control lever. The lever lowers the part from conveyor height, actuates the balancing mechanism, locks the machine for correction of the part, and raises the part to conveyor height. This complete cycle takes 10 sec.

ASTE-31 **Booth—1705**

Tool Holder for Vertical Mills

An eight-position tool holder designed for use on vertical boring and turning mills has been announced by the Davis Boring Tool Div. of Giddings and Lewis Machine Tool Co., Fond du Lac., Wis. The tool is said to enable an operator to turn, undercut, bore and chamfer in one set-up. Four tools can be mounted at once, with positive position assured by two index pins.

(*Turn to page* 545, *please*)

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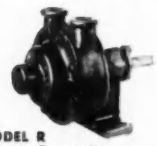
for Pump Headaches.....

Specify TUTHILL PUMPS
for LUBRICATION
COOLANT
FUEL and LIQUID TRANSFER
HYDRAULIC MECHANISMS

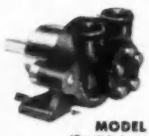
MODEL C
(General Purpose)
For use with non-corrosive liquids. Low cost, low maintenance. Compact. Capacities to 200 g.p.m. and pressures to 100 p.s.i. Direct drive or belted units.

MODEL CK
(High Pressure)
Compact, ball-bearing pump in capacities up to 50 g.p.m. and pressures to 400 p.s.i. Direct drive or belted units.

MODEL M
(Coolant)
Has built-in automatic by-pass for protection against excessive pressure; also compensates for wear. Capacities to 50 g.p.m.



MODEL R
(Automatic Reversing)
Delivers from same port regardless of direction of shaft rotation without check valves. Capacities to 200 g.p.m.



MODEL L
(Small Industrial)
Mechanically sealed for leak-free service and low power consumption. Capacities to 3 g.p.m. and pressures to 600 p.s.i.

Write for Tuthill Pump Guide to help you select the exact pump for the purpose, whether it be for replacement or a new application on original equipment.

TUTHILL
Pump Company
939 East 95th Street, Chicago 19, Illinois

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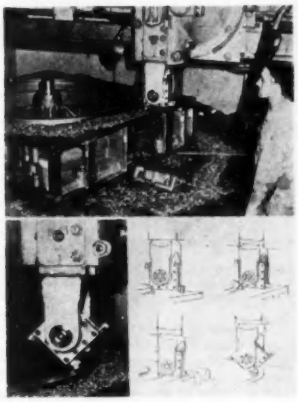
(*Continued from page* 544)

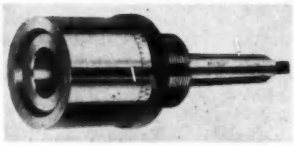
One wrench adjustment will change position through 360 deg. indexed increments of 45 deg. A center pin locks the complete assembly. Decreased set-up time and a resultant increased production are the claimed features of the tool holder.



Davis eight-position tool holder.

ASTE-32 **Booth—200**

Stop Collar and Stop Nut Holder



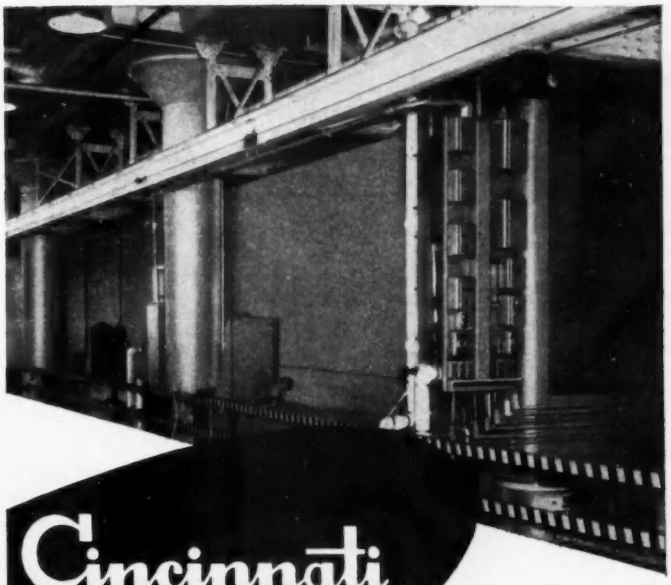
Metal Cutting Tools, Inc., Rockford, Ill., will show a new design stop collar and stop nut holder, in a range of sizes, for use on work requiring specified depth of cut. Principal feature is the regulation of the depth of cut by stopping the adjustable collar or nut against the jig or work piece being machined.

ASTE-33 **Booth—1931**

Air Line Filter

For automatic removal of liquids and solids from compressed air lines combined with automatic drainage of col-

(*Turn to page* 546, *please*)



Cincinnati

CLEANING MACHINE

processes 8 TONS of parts daily for leading electrical manufacturer

An extremely wide variety of formed metal panels are cleaned in General Electric's Philadelphia plant by this Cincinnati designed-and-built machine. Miscellaneous steel and aluminum panels, at the rate of 225 tons a month, receive six stages of treatment: alkali wash, two rinses, phosphate coat, rinse, chromic rinse and air dry. In addition to time and labor savings, better pre-finish cleaning is obtained, reports this well known manufacturer.

A cleaning machine engineered by Cincinnati to save time, labor and materials . . . yet assure better results . . . can be designed to meet your particular requirements. For additional details or a no-obligation survey of your cleaning problems, call in a Cincinnati engineer.

Catalog available on request.

Cincinnati

CLEANING & FINISHING MACHINERY CO., INC.
315 HECLA STREET, IRONTON, OHIO

WHAT'S NEW AT THE

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(*Continued from page* 545)

lected liquids, the C. A. Norgren Co., Englewood, Colo., has brought out a Series 11,200 combined air line filter and automatic drain. The float-operated automatic drain is said to operate under constant or fluctuating air pressure, with or without air flow. Standard filter element is reinforced 200-mesh Monel wire screen. Area of filter elements range from 24 to 71 times the area of the pipe opening. Recommended operating conditions are zero to 35 cfm air flow with a pressure of zero to 150 psi. Temperature range is from 40 to 120 F.

Norgren air line filter, Series 11,200.

HONESTY ★ INTEGRITY ★ QUALITY OF PRODUCT

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ONE COMPLETE DEPENDABLE SOURCE FOR ALL YOUR

Electronic Needs Aircraft Parts

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Whatever your Electronics or Aircraft needs may be, you can save money, time and effort by ordering from this one complete source. All merchandise is fully guaranteed, first quality. Prompt shipment is assured from our own inventories of Electronics Equipment.

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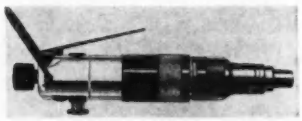
507 Fifth Ave., New York 17, N. Y. MUrray Hill 7-0084

CABLE ADDRESS: "ELEXPEDITE"

ASTE-34 Booth—1810

Positive Clutch Reversible Screwdriver



On display at the booth of the Aro Equipment Corp., Bryan, Ohio, will be this model 7501 positive clutch reversible screwdriver. It has a speed of 1800 rpm and has a nominal capacity of No. 8 machine screws and free-running nuts. The tool is equipped with 1/4 in. hex holder, and a 1/8 in. air inlet. Weight of the 7 1/4 in. long unit is 1.2 lb.

ASTE-35 Booth—832

Optical Tools

F. T. Griswold Mfg. Co., Wayne, Pa., will exhibit a complete line of optical tools not heretofore shown. Two distinct types of alignment telescopes, an optical cam rise gage, a level and a drill point-chek gage have been added to the firm's line.

ASTE-36 Booth—809

Universal Dial Test Indicator

For determining surface flatness, alignment, out-of-roundness, relative heights, locations and many other checking functions, the Lufkin Rule Co., Saginaw, Mich., has brought out a universal dial indicator. Entire mechanism is mounted on a bar forming the base of the indicator and the shank by which it is held.

Hairspring is on rigidly mounted main shaft. Jeweled thrust bearing is said to assure smooth operation, accuracy. It has a bezel clamp for either adjusting the tension on the bezel or

(*Turn to page* 547, *please*)

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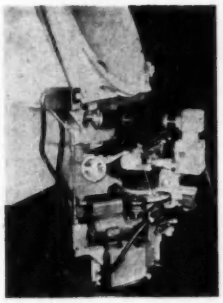
(*Continued from page 546*)

for locking it in position. Dial is 1½ in. diam, circumference divided into 100 equal spaces, each representing 1/1000-in. Reads clockwise from zero to 50 back to zero providing plus or minus readings. Range or spindle travel 0.200 in. Improved hole attachment screws directly into the base, is in direct alignment with the shank by which indicator is held. Range with hole attachment 0.125 in.

Lufkin universal dial test indicator.

ASTE-37 **Booth—1411**

Power Positioner

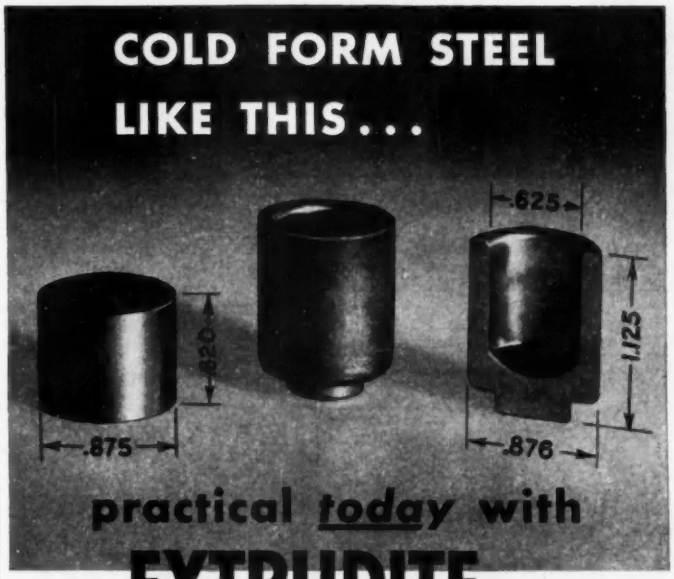


Jones & Lamson Machine Co., Springfield, Vt., will feature this power elevation attachment for J & L optical comparators. It is a self-contained motor driven unit for raising or lowering the work table of comparators.

ASTE-38 **Booths—1511-1517**

Chucks

Scully-Jones & Co., Chicago, Ill., is offering a line of precision tools used for internal or external chucking of parts and tools during turning, grinding or inspection operations. Roll-Lock (*Turn to page 548, please*)



new EXTRUDITE process

Cold steel forming operations have great new horizons because of a new method of surface treatment—the *Extrudite* Process. This Detrex development for coating steel produces a dry, clean, heat-resistant lubricating film which is integral with the work surface. As a result the film stretches with the metal throughout the most severe drawing and extrusion operations. Metal-to-metal friction between dies and work is eliminated!

On operations like deep drawing, cold heading, wire drawing, tube drawing and extrusions at room temperature, the Extrudite Process provides tremendous savings . . . operations are speeded up with present equipment, dies last longer and many process anneals and chemical treatments are eliminated.

See It Work!
COLD STEEL EXTRUSIONS as shown above will actually be formed
at Booth 2035
ASTE SHOW
Chicago, March 17-21

If you cold form steel, the Extrudite Process provides substantial benefits. Get the facts in Chicago at the ASTE Show or write direct for our bulletin.

DETREX BOX 501, DETROIT 32, MICH. *Corporation*

WHAT'S NEW AT THE

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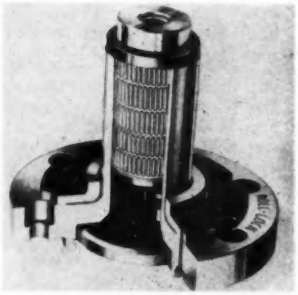
For additional information regarding any of these items, please use coupon on page 416

(Continued from page 547)

mandrels, arbors and chucks use a new principle for creating an extremely rigid and accurate centering or shrink fit.

In either method of chucking (external or internal) only rolling friction has to be overcome. With a turning force on the actuating ring or cone, holding pressures are said to be quickly exerted between the Roll-Lock chucking tool and work piece. This is due to the wedging action of the rollers which expand or compress the chucking surface to a shrink fit. The shrink fit is disengaged by a reverse twist of the actuating ring or cone.

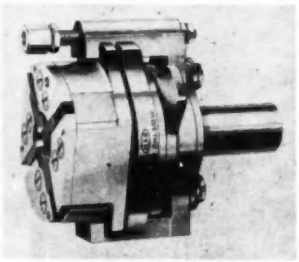
Except for the metal cage for the rollers, all parts are made of a special alloy steel carefully hardened, preground, artificially aged and finally finish ground. Proper seals prevent entrance of chips, dust and fluids.



Scully-Jones chucking tool, the Roll-Lock.

ASTE-39 **Booth—450**

Self-Opening Die Head



Aligning self-opening die heads for Brown & Sharpe automatic screw machines and other machines where the die head does not rotate—turret lathes, hand screw machines, etc.—will be exhibited at the booth of the Eastern Machine Screw Corp., New Haven, Conn.

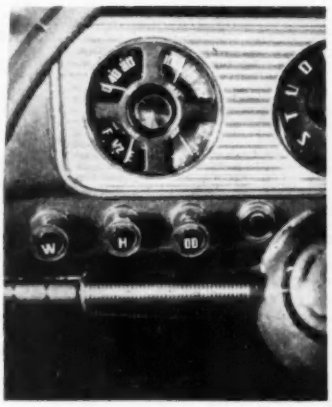
ASTE-40 **Booth—614**

Balancing Machine

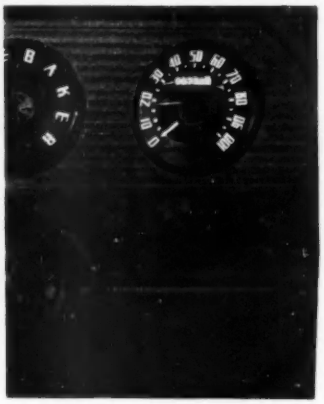
A special version of the R. B. Annis Co., Indianapolis, Ind., Dynograph Balancing Machine, which has an overhung fixture for the dynamic balancing of a rotor element having internal ball bearings and supported on a non-rotating shaft stud projecting from one end, will be on exhibition.

Correction for balance is made by drilling the rotor near each end. Complete separation of readings is obtained through a parallel nodal-bar arrange-

(Turn to page 549, please)



READ THIS...



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Pioneer in Fluorescence

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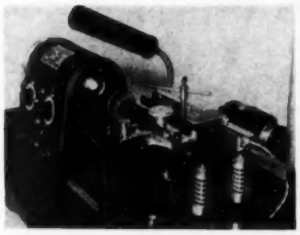
(*Continued from page* 548)

ment. Phasing is indicated by means of a photoelectric scanner in the headstock.

A single reading on the cathode-ray tube scale indicates both amount and position of unbalance in the selected correction plane.



Annis balancing machine, Dynograph.

ASTE-41 **Booths—620-621**

Small Hole Air Gage Plug

A feature of the Taft-Pierce Mfg. Co., Woonsocket, R. I., display will be the small hole air gage plug. This plug will be demonstrated with the Comp-AIR-ator air gage. Flat plugs for slot measurement down to 0.038-in. have been placed on the market.

ASTE-42 **Booth—810**

Grinding Wheel Dresser

The Perfex Gage and Tool Co., Mt. Clemens, Mich., will show its Tangi-Matic dresser for precision dressing of all angle-tangent-to-radius grinding wheel forms. According to the manu-

(*Turn to page* 550, *please*)

One of the most exacting machining operations in the production of turbo-jet engines is the grinding of compressor rotors in the Kansas City plant of the Aviation Gas Turbine Division of Westinghouse Electric Corporation. Two 24" x 96" Norton cylindrical grinders are mounted, as shown above, directly on Korfund Steel Spring Vibro-Isolators without the usual massive foundations. These grinders are 19' 6" long and weigh 27,200# each.

...by protecting grinder accuracy against external vibration

Extremely close tolerances required for compressor rotors made it necessary for Westinghouse to isolate their cylindrical grinders from heavy external truck vibration.

Conventional foundations would have required an excavation through the existing floor 7 ft. wide by 22 ft. long by 4½ ft. deep—with over 20 cubic yards of concrete weighing approximately 80,000 lbs.—for each grinder.

In contrast to this, Korfund Steel Spring Isolators permitted installation of the grinders directly on the existing concrete floor after simply removing the wood block to help reduce the height of the installation.

Tests made after the installation was completed—in which the isolators were "short circuited" out—demonstrated that it would have been impossible to do accurate work on the grinder without Korfund Vibration Control. Rigid alignment of work and grinding head is maintained, as proven by the fact that during the first two years of operation, no adjustments have been required.

Korfund Isolators more than paid for themselves in reduced foundation costs alone.

If you would like more information on how Korfund Vibration Control can save you money and increase production, write for your free copy of "Steel-Spring-Type Vibration Mountings for Machine Tools." Also, a selector chart in Bulletin G-104 gives recommendations for both normal and critical installations—for machine tools, presses, hammers, pumps, compressors and most other types of mechanical equipment. See Sweet's Catalog Files, or write us for your free copy today.

We'll gladly submit recommendations without obligation. Just contact us, or the Korfund representative you'll find in most principal cities. A half century of experience is at your disposal.

KORFUND VIBRATION CONTROL — SPRINGS — RUBBER — CORK

THE KORFUND COMPANY, INC.

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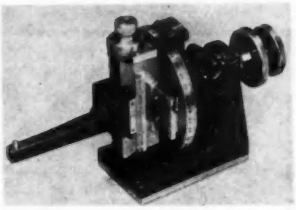
In Canada: 2040 Victoria St., Montreal 2

See us at the Tool Engineers Industrial Exposition, Chicago, March 17-21, Booth No. 1011

For additional information regarding any of these items, please use coupon on page 416

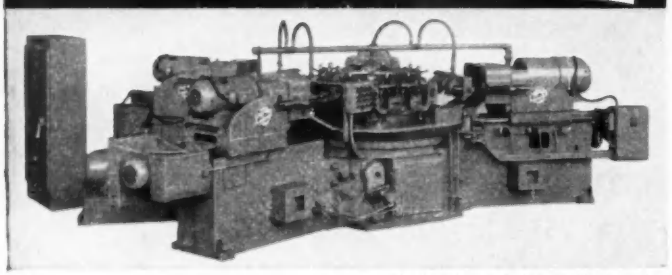
(Continued from page 549)

facturers, set-up time is reduced to one-fourth the time usually required. A built-in micrometer provides direct reading, rapid adjustments and accuracy down to tenths, it is said. Setting for required angles is provided by a vernier scale, graduated in minutes. Two stop dogs control desired arc. The Tangi-Matic dresses concave radii as small as 0.032 in., full 180 deg, using the small radius attachment furnished. The Tangi-Matic dresses from the bottom of the wheel, the company points out, where grinding actually takes place.



Reflex grinding wheel dresser, Tangi-Matic.

Drilling and Reaming
388 KING PIN HOLES PER HOUR



Station Type Indexing Machine for drilling and reaming king pin holes.

On a Davis & Thompson 5 Station Machine

This type MDT FIVE STATION INDEXING DRILLER has five fixtures mounted on the index table. Each of these fixtures holds 2 RH and 2 LH automobile front suspension support arms. Four ROTO-MATIC Power Heads, each having four spindles, perform the following operations:

1. Drill 53/64" dia.—Half way through.
2. Drill .823" dia. — Balance of way through.
3. End Cut Ream .8547/.8550" — Full length of hole.
4. Finish Ream .8635/.8637"—Full length of hole.
5. Load and Unload.

Two RH and two LH pieces are completed at the end of each cycle. Cycling is automatic, and, operator loads and unloads during machine cycle.

4 New Davis & Thompson Mechanical Power Heads

Included in the design of this machine are the new ROTO-MATIC Mechanical Electrical Power Heads operated through screw feed. An important safety feature of these units is the patented overload release clutches on the feed. Because of the simplicity of their design the units require a minimum of servicing.

Free Data

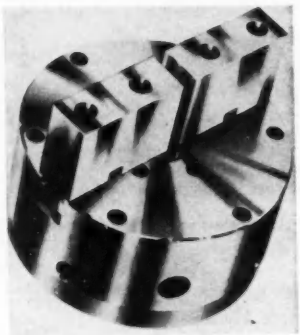
Will be furnished on request.

DAVIS and Roto-Matic THOMPSON

Davis & Thompson Company
6411 W. BURNHAM ST., MILWAUKEE 14, WISCONSIN

ASTE-43 Booth—153

Jaw Chuck



The Buck Tool Co., Kalamazoo, Mich., Adjust-Tru two-jaw aviation chuck, which will be shown, is especially designed for use on light lathes in chucking odd-shaped parts which offer only irregular holding surfaces. It is said to be particularly useful in machining irregularly-shaped aluminum aircraft parts. It is furnished with master jaws and one set of soft top jaws for making the length and height of jaws needed to handle your specific work. Jaws on the Ajust-Tru move in and out simultaneously to grip the work with a single-pinion action.

ASTE-44 Booth—536

High Vanadium Tool Steels

The Vanadium-Alloys Steel Co., Latrobe, Pa., will display tools made from Vasco Supreme, Neatro and Van Cut, the high vanadium super high-speed steels developed by the company. Actual performance records of the tools in service will be contrasted with the tool life and machining speeds obtained by previous tool material on the same applications. Said to contain more carbon than has hitherto been available in any high-speed steel, high-vanadium

(Turn to page 551, please)

WHAT'S NEW AT THE

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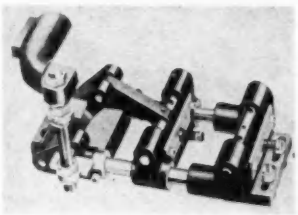
(*Continued from page* 550)

high-speed steels can be hardened to a higher degree, producing greater resistance to wear and the ability to cut harder materials. The presence of vanadium is also said to increase the resistance of Vasco Supreme, Neatro and Van Cut to softening at high temperatures, making higher machining speeds and feeds feasible.

ASTE-45 **Booth—1104**

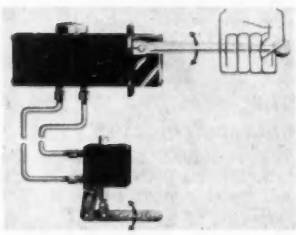
Automatic Feed for Stamping Presses



The Producto Machine Co., Bridgeport, Conn., will show its newly designed Surefeed. This automatic feed for stamping presses mounts directly on the die set. Stock up to 2-in. wide and 0.045-in. thick can be advanced through movement of the press.

ASTE-46 **Booth—849**

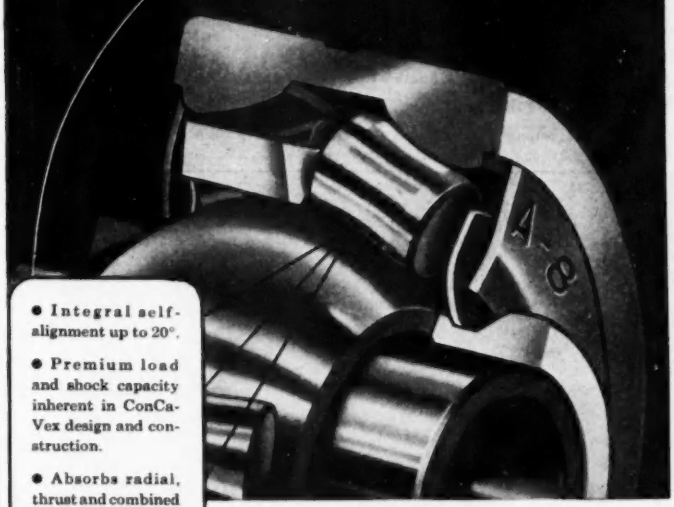
Hydraulic Remote Control



Superdraulic Corp., Detroit, Mich., will feature its hydraulic remote control. This unit is a device for positioning, controlling and duplicating movement at a distance. It is said to have many applications in the product design field including machine tools. Chief among its features is the automatic compensation for contraction and expansion of the fluid media. It operates with a smooth, sensitive stroke.

(*Turn to page* 552, *please*)

SHAFER
CONCAVEX BEARINGS



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- Absorbs radial, thrust and combined loads.

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The basic ConCaVex design is an aircraft "natural." It provides high load and shock capacity, low friction and integral self-alignment together with space-saving, weight-saving compactness. This, combined with advanced engineering, precision craftsmanship and finest materials have, for 32 years, ranked Shafers as the No. 1 choice in aircraft control bearings.

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ASTE-47 **Booth—1050**

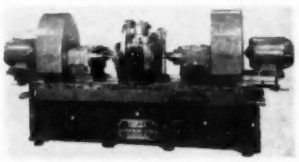
Universal Grinder

S & S Machinery Co., Brooklyn, N. Y., has announced the availability of the Polygon grinding machine for grinding circular eccentric and non-circular profiles. Polygonal profiles, internal and external, with tolerances averaging 0.0002-in. may be ground, according to the company. This 12-in. by 30-in. machine has a center height of 6.890-in. and a distance between centers of 31.496-in. The wheel driving motor is seven-hp with a 0.55 hp motor used for controlling the workpiece rotation and gyratory motion of the grinding wheel axis. A 2.2-hp motor is used for the hydraulic system and the coolant pump.

S & S distributed grinder, the Polygon.

ASTE-48 **Booth—508**

Precision Boring Machine



Simplex Machine Tool Div., Stokerunit, Corp., Milwaukee, Wis., will display a Model 3U two-way hydraulic feed precision boring machine with a special three-station hydraulically indexed trunnion. This machine is used to precision bore and counterbore the wrist pin hole in aircraft pistons. The machine is equipped with four Simplex No. 4 self-contained, automatically lubricated, precision boring heads. A three-station hydraulically indexed trunnion with manually clamped type work-holding fixtures, is mounted on the work table area of the machine. The trunnion is electrically interlocked with the cycle of the machine so that it must be in its proper position before the machine will operate. This machine produces piece parts at the rate of 120 per hr at 80 per cent efficiency.

ASTE-49 **Booth—518**

Contour Projector

To be featured in the display of Eastman Kodak Co., Rochester, N. Y., is the firm's latest contour projector, Model 2A. This model is similar to other Kodak contour projectors except for the following modifications: Length of the work support table is 21½ in., width is eight in. The distance from the center of lens to top of work table, when the table is in the extreme up position, is ⅞ in. Distance from center of lens to top of work table, when the table is in the extreme down position, is 5⅛ in. Measurements to 0.0001 in. can be obtained.

(*Turn to page* 553, *please*)

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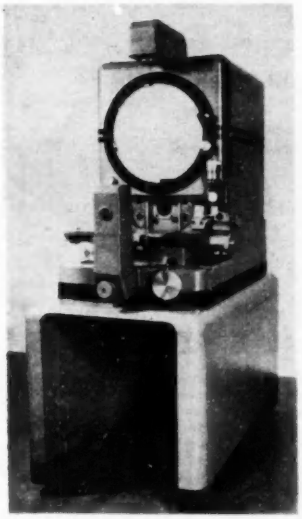
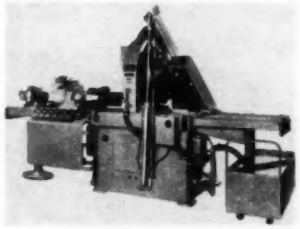


Kodak contour projector, Model 2A.

ASTE-50 Booth—1126

Wet Abrasive Cutting Machine

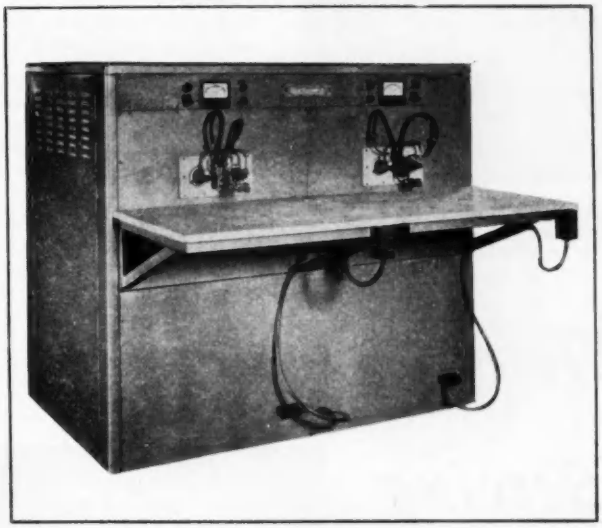


This rotary-oscillating-hydraulic type wet abrasive cutting machine, Model 508, to be exhibited by Campbell Machine Div., American Chain & Cable Co., Inc., Bridgeport, Conn., will cut round bars up to eight-in. diam and tubing up to eight-in. OD. Ferrous, non-ferrous or plastic materials, including corrosion resisting as well as hardened or annealed steel can be cut. Model 508 is a revolving work bar type machine with oscillating abrasive cutting wheel, hydraulic wheel feed and hydraulic work clamps. Temperature of work is controlled by proper coolant.

(*Turn to page 554, please*)

NEW 2 POSITION 5 KW

INDUCTION BRAZING EQUIPMENT



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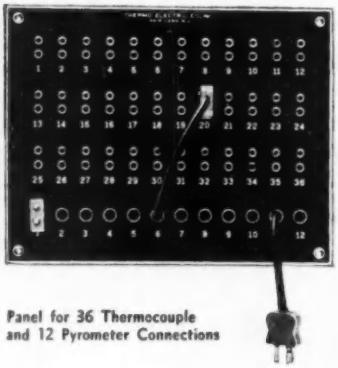
605 W. LAKE ST. CHICAGO 6, ILL. RA. 6-9755

SAVE TIME CONNECTING THERMOCOUPLE CIRCUITS with QUICK COUPLING CONNECTOR PANELS



Panel for 36 Thermocouple and 12 Pyrometer Connections

A rapid and flexible method for connecting numerous thermocouples to pyrometers—regardless of their location. One central point for making and breaking circuits.

Polarized Plugs and Jacks are made in all standard calibrations—Iron Constantan, Copper Constantan and Chromel Alumel.

Catalog Section 23J fully describes these Panels. Write for your copy today.

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FAIR LAWN NEW JERSEY

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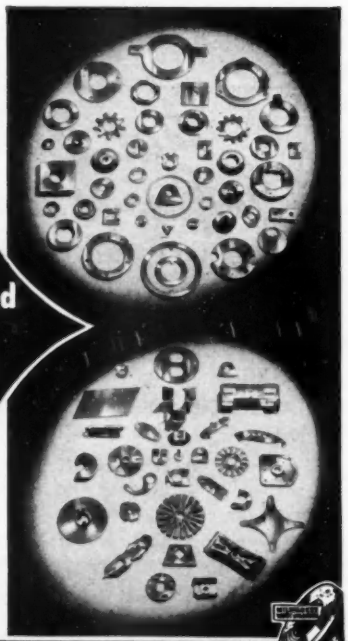

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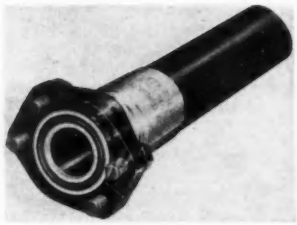
ASTE-51 **Booth—304**

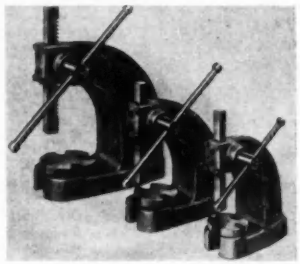
Split-Flange Clamp



The Anchor Coupling Co., Inc., Libertyville, Ill., has announced the development of a split-flange type clamp. This clamp design is said to represent an important development for the hydraulic field. A wide selection of sizes is available for use with either clamp or pressed-on type couplings in straight or angle styles for one- or two-wire braid hose from 1/2-in. ID through two in. ID. The clamp can be used for high, medium, or low pressure service, suction return lines, etc. Seal of this clamp consists of an O-ring. Bolt centers are located to evenly distribute the forces and prevent tilting of the clamp halves. The ribbed clamps are structurally strong to withstand pressures of high pressure hose.

ASTE-52 **Booth—1805**

Arbor Presses



Benchmaster Mfg. Co., Gardena, Calif., will exhibit a line of specially developed arbor presses. Offering increased work capacity —both in throat depth and in vertical space, they are furnished in three sizes—Number 0, 1 and 2 and in standard and solid platen types with choice of lever or pilot wheel actuation.

(*Turn to page* 555, *please*)

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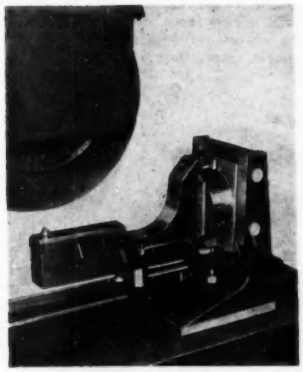
ASTE-53 Booths—1424-1428

Air-Powered Drilling Unit

A unique drilling device will be shown by the Bellows Co., Akron, Ohio. The unit, named the Hydrair, is electrically controlled, but air powered with the feed rate hydraulically controlled. Drilling capacity is ¼ in. with maximum depth of stroke four in. The Hydrair features rapid advance, controlled feeding through the work and rapid return. All controls are built in.

ASTE-54 Booth—1922

Grinding Wheel Dresser

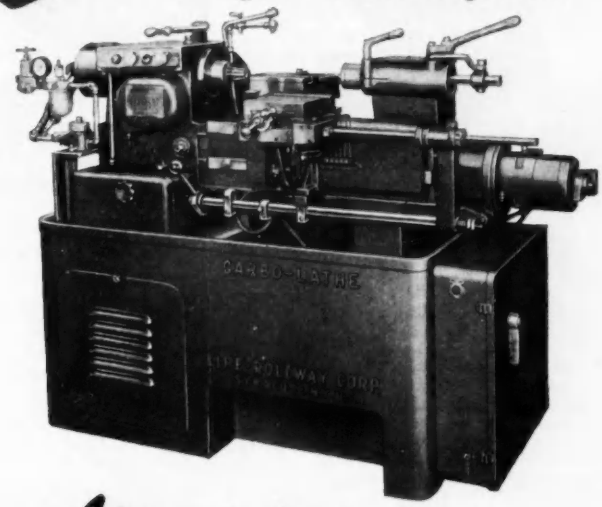


This wheel dresser designed and developed by J & S Tool Co., Inc., East Orange, N. J., for dressing wheels from the smallest diameter up to 36 in. It is said to maintain an accuracy of 0.0001 in. up to 14-in. diam wheels and to 0.0005 in. on 36-in. diam wheels. Called Fluidmotion dresser, it can now be adapted to cylindrical, tool and cutter grinders, as well as some internal grinders. A series of fixtures converts it from a surface grinder wheel dresser to use on any other cylindrical type grinder. The dressers are made of high-carbon, high-chrome, hardened, ground and lapped alloy steels. They swivel on stainless steel ball bearings completely proteced from dust.

(Turn to page 556, please)

STAMINA

take heavy, high-speed cuts on high-Brinell and tough steels



Lipe Carbo-Lathe

America's pioneer carbide tool lathe with complete cycle electrically controlled

Bed and headstock cast in one piece from 500 pounds of chrome-molybdenum iron! Massive tailstock with a 3" diameter quill! Heavy bed sidewalls reinforced by cross ribs! These are the reasons why the Lipe Carbo-Lathe eliminates all deflection and weaving—why it is rigidly resistant to torsional stresses and strains. Brute power and a wide range of selective speeds permit hogging feeds and cuts on high-Brinell steels, scaly surfaces, weld spots and jump cuts.

More, the complete cycle can be electrically controlled. A push on the starter button starts the spindle, moves the carriage to the cutting position, automatically engages the mechanical feed. At the end of the cut, the feed disengages, the spindle stops and the carriage returns quickly to the loading position. At every point in the cycle the operator has complete manual control, if necessary.

Lipe Carbo-Lathes are sold with or without Automatic Electric Cycle Attachment (illustrated). Write for further information and delivery dates.

LIPE ROLLWAY

Lipe - ROLLWAY CORPORATION

Manufacturers of Automotive Clutches and Machine Tools

Syracuse 1, N. Y.

SPEED Shop Operations...

Cut Time Costs... Reduce "Tool Fag" with Mall Portable Power TOOLS

Tough production jobs flow smoothly, quickly, with lower time costs and less operator fatigue when your plant is equipped with Mall light-weight, portable power tools . . . Here are just a few of the pneumatic or electric powered tools you'll find profitable for your operations:

Model PD 324P

Mall
HEAVY-DUTY PISTOL GRIP PNEUMATIC DRILL

¼" Capacity. Light-weight power with unlimited uses — Costs little to operate, ruggedly built for long service — Attachments available for ½" drilling, disc sanding, polishing, buffing, grinding, nut setting, chain sawing.

Mall
"SHORTY" PNEUMATIC DIE GRINDER

Model PG-K2022L

Designed for rugged continuous use on die work and other production grinding operations. Weights only 18 ounces, fits hand comfortably. Saves time and labor. ¼ inch Collet size. Speed 22,000 rpm.

Mall
TORK HAMMER IMPACT TOOL

Model No. 2EW Electric

A fast, portable tool with "tork hammer" action for tremendous rotary impact on all tightening and removing operations. Light but plenty rough. Speeds production in any plant. Runs nuts and bolts up to ½" in size. Converts for drilling, driving wood augers, wire brushes, screwdrivers.

Mall
MULTI-PURPOSE ELECTRIC DRILL

Model 381

A lightweight power house for a wide range of industrial operations. Performs with top efficiency in steel, wood, masonry — for disc sanding, polishing, driving saw holes, etc. Pays for itself many times over in useful, low cost operation. Pistol grip. Capacity ⅜" in metal, ¾" in wood. Operates on 115 volt AC-DC current.

Mall
REVERSIBLE PNEUMATIC SCREWDRIVER

Model PSDR-204P

Gives you 2-way torque, plus controlled tension. Extra useful on rapid assembly jobs. Rotation changes at flip of button. Equipped with noise silencer. Speed 1500 rpm. Cool running motor.

40 Factory-Owned Service Warehouses, Coast to Coast, To Serve Our Customers and Thousands of Dealers.

Mall TOOL COMPANY

7778 South Chicago Avenue
Chicago 19, Illinois

Clip and mail this CHECK LIST for details

WHAT'S NEW AT THE

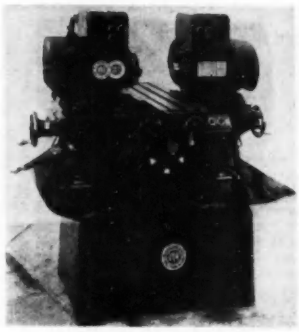
ASTE INDUSTRIAL EXPOSITION

For additional information please use coupon on page 416

(*Continued from page 555*)

ASTE-55 **Booth—1624**

Double-Spindle Milling Machine



The Nichols-Morris Corp., New York, N. Y., Twin Mill, a double-spindle high-precision machine, is for light-duty work where two surfaces can be milled in a single pass. The machine has two opposed independent geared milling heads powered by pancake type motors and each has available 15 spindle speeds from 55 to 2080 rpm.

ASTE-56 **Booth—751**

Grooving Tool

Waldes Kohinoor, Inc., Long Island City, N.Y., will display and demonstrate their specially developed tool for cutting internal recesses and bores or houses. The Waldes Truarc grooving tool is a fully automatic instrument designed for precision cutting of internal grooves.

(*Turn to page 557, please*)

WHAT'S NEW AT THE

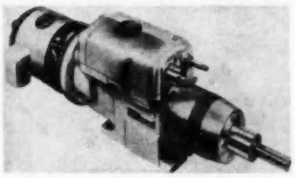
ASTE INDUSTRIAL EXPOSITION

For additional information please use coupon on page 416

(*Continued from page 556*)

ASTE-57 **Booth—209**

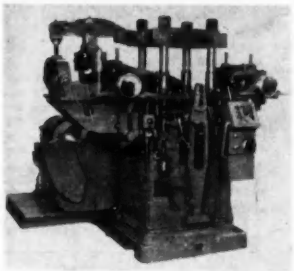
Air-Powered Hydraulic Drill



Rockwell Mfg. Co., Delta Power Tool Div., Milwaukee, Wis., is now in full production on its Model No. 19-400 air powered hydraulic drill unit. The drill unit is designed for heavy-duty high production work on drilling, reaming, tapping, centering, chamfering, spot facing, etc. This air-powered hydraulic unit derives its thrust from the plant compressed air supply and its control from a sealed hydraulic system. Spindle is driven by an electric motor either directly, through a gear train, or by vee-belts. The unit may be mounted in any position.

ASTE-58 **Booth—1325**

60-Ton Dieing Machine



The Henry & Wright Div. of Emhart Mfg. Co., Hartford, Conn., exhibit will include a 60-ton high speed dieing machine having an operating range of 155 to 475 strokes per minute. The machine will be in operation producing one completed rotor and one completed stator lamination at each stroke from a multiple-station progressive die operating at a speed said to be substantially in excess of those customarily employed for laminations of this size.

(*Turn to page 558, please*)

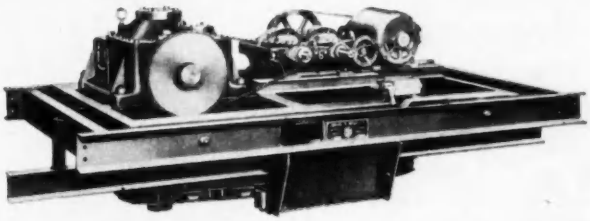
The FIRST Flying Carpet

was "FLOATED" by an Old Caliph in Bagdad

He mentioned it frequently in his famous Tales of the "Thousand and One Nights." Since then "air space" has been put into use for many mechanical devices . . .

Not a floating carpet — but a powerful pulling "work-horse" for conveyor systems is the

FLOATING DRIVE with AUTOMATIC CUT-OFF and LOAD INDICATOR



another FIRST by JERVIS B. WEBB COMPANY

For years a standard on Webb Conveyor systems, the patented Floating Caterpillar Drive enables automatic limit switch cut-off in case of jam, cushions starting load, and has an easily seen calibrated load indicator.

The motivating power unit on both the Caterpillar and Sprocket type Webb drives floats on wheels against heavy springs. When a conveyor starts, the initial shock is taken by these springs.

If external forces jam the conveyor, the springs are compressed to a point where the moving frame actuates a limit switch on the fixed frame, stopping the drive instantaneously. As soon as the jam is eliminated, the conveyor may be started immediately by push button. There are no shear pin headaches. If a conveyor becomes overloaded, this fact is indicated at once as the compressor springs move an arrow indicator to a red danger area.

CONVEYOR ENGINEERS AND MANUFACTURERS

JERVIS B. WEBB COMPANY

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OFFICES IN PRINCIPAL CITIES

FACTORIES IN DETROIT . . . LOS ANGELES . . . HAMILTON, ONT.

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in production,
assembly, packaging,
shipping

You can save time
and money with
the proper use of

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For masking, holding, packaging, backing, hinging, protecting, reinforcing, identifying, splicing, sound-proofing, insulating, stenciling, bundling, sealing, binding

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collect for authoritative advice and suggestions. Prices, catalogues, samples on request. Tape to meet govt. specifications. Wire details collect for 24-hour reply.

"Originators of Pressure-Sensitive Industrial Tape"

INDUSTRIAL TAPE DIVISION
THE SEAMLESS RUBBER COMPANY
NEW HAVEN 3, CONN., U. S. A.

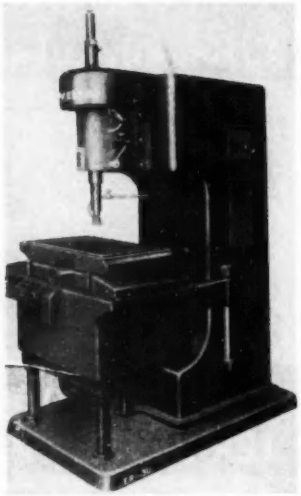
WHAT'S NEW AT THE
ASTE INDUSTRIAL EXPOSITION

For additional information please use coupon on page 416

(Continued from page 557)

ASTE-59 Booth—300

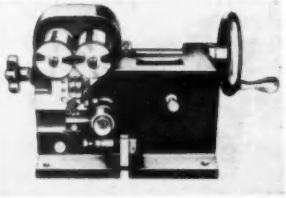
Compound Table Tapping Machine



Cleveland Tapping Machine Co., Canton, Ohio, will exhibit a compound table tapping machine on which the work piece rests on a table which is movable longitudinally, transversely, and vertically.

ASTE-60 Booth—215

Precision Spring Coiler



The Perkins precision spring coiler which can make torsion, compression, extension and tapered springs, coiled either right or left hand, will be shown by Conners and Davis Sales Corp., Springfield, Mass. Wire stock from 0.005 in. to 0.125 in., can be handled. Springs can be made with or without initial tension and with open or closed ends.

PRECISION MADE
Pheoll
SCREWS, BOLTS, NUTS and SPECIAL FASTENERS

save assembly time
improve product strength
and final appearance

ACCURATE THREADING SAVES TIME

Pheoll Screws, Bolts, and Nuts are easier to start, easier to drive and easier to tighten—because they're accurately machined and threaded. These features cut your assembly time and cost.

COLD ROLLED THREADING ADDS STRENGTH

The grain structure and flow of metal obtained through cold heading and roll threading increases the structural strength of Pheoll Fasteners. Cold working improves thread bearing surfaces, providing greater area of contact for firmer grip. Greater strength reduces possibility of shearing, and time lost in subsequent removal and retapping.

OUR INSPECTION IMPROVES YOUR PRODUCT APPEARANCE

Step by step Pheoll inspection, through every process of production, assures uniform head size and shape; cleanly milled and recessed heads, neat chamfering and countersinking. All these factors contribute to the quality and finish which add materially to your product's final appearance. *Write* for Pheoll's product literature and price list.

THESE PHEOLL PRODUCTS INCREASE YOUR PRODUCTION RATE. Thumb Screws Machine Screws† • Wood Screws† • Sheet Metal Screws† • Stove Bolts† • Rolled Threaded Wires and Studs • Special Rivets and Pins • Brass Washers

†Furnished in slotted and Phillips Recessed Head Types

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5700 ROOSEVELT ROAD
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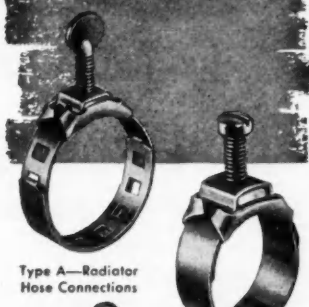
SCREWS • BOLTS • NUTS
Industrial Fasteners and Holding Devices

WITTEK

NOC-OUT HOSE CLAMPS

The Standard of the Automotive Industry



Type A—Radiator Hose Connections

Type G-BB—Booster Brake Hose Connections No. G-B-HH for Hot Water Heater Hose

Type HP—High Pressure Hose Connections

Wittek Noc-Out Hose Clamps are designed in a variety of types made in many sizes for use by the automotive industry. Because they provide the most practical leakproof hose connection, they are specified by the leading manufacturers as standard, original equipment for automobiles, buses, trucks and tractors.

Write for descriptive literature.

Automotive HOSE CLAMPS

WITTEK MANUFACTURING CO.

4319 W. 24th Place, Chicago 23, Ill.

Dependability in Hose Clamps for Over a Quarter of a Century

MEN *in the* NEWS

(*Continued from page* 86)

B. F. Goodrich Co., Tire Manufacturing Div.—**Fred N. Lehmann** has been named staff superintendent and **George S. Ketter** manager of industrial engineering.

Bogue Electric Manufacturing Co.—**Joseph J. Carlson** has been promoted to works manager.

Philco Corp., Auto-Radio Div.—**Martin F. Shea** has been selected as vice president in charge of car radio manufacturing sales and head of the Detroit operation.

Goodyear Aircraft Corp., Rocket Components Div.—**W. H. Cline** has been appointed to handle administration and coordination of this new division. **J. A. Keenan** has been placed in charge of manufacturing operations, and **Dr. H. E. Sheets** is responsible for all phases of engineering.

General Motors Corp., GMC Truck & Coach Div.—**E. W. Jolly** has been named assistant Detroit zone manager.

Lamb Electric Co.—**Alexander S. Keller** has been appointed a director and vice president in charge of finance.

Detroit Aluminum & Brass Corp.—**Joseph E. O'Hern** has been selected as a factory representative for engine bearings.

Nash-Kelvinator Corp., Nash Motors Div.—**J. R. Leonard** has been named assistant service manager of the Eastern Div.

General Electric Co.—**Earl W. Cunningham** has been chosen general manager of the Industrial Heating Dept.

E. B. Wiggins Oil Tool Co.—**Rod Strouse** has been named sales engineer for aircraft.

Westinghouse Electric Corp., East Pittsburgh Div.—**Robert W. Gray** has been named assistant manager of industrial relations.

Loewy Construction Co., Inc., Counter-Blow Hammer Div.—**Howard Terhune** has been made project engineer.

Rycenga Manufacturing Co.—**Clifford W. Hoye** has been elected president.

Hydraulic Equipment Co.—**Robert F. Hodgson** has been named vice president.

B. F. Goodrich Chemical Co.—**James C. Richards, Jr.,** has been elected vice president, sales, and **Allyn I. Brandt** has been appointed general merchandising manager.

Hiller Helicopters—**James B. Edwards** has been named chief engineer.

ACCO products CHECK

Shaped Wire*

— Flat
● Round
⧓ Odd contour

Low or high carbon, stainless, special alloy, Armco. You draw the shape—PAGE can draw the wire.

Armature Banding Wire

Tinned stainless or carbon steel. In reels of 50 to 200 pounds. Stainless has high tensile strength, high resistance, low permeability.

Lock Safety Wire

Tough, durable, workable. In the size and type for your work.

Spring Wire

Any shape* . . . high carbon . . hard drawn . . . high tensile . . . stainless . . . galvanized . . . tinned . . . bright.

*Cross-sectional areas up to .250" square; widths to ⅜"; width-to-thickness ratio not exceeding 6 to 1.

YOU do this—

Give us the specifications of the wire you need—or tell us details of job to be done.

WE'LL do this—

Send you recommendations, prices and delivery date. Samples on request. PAGE offers you a wide variety of wires to choose from.

Wire or Write Today

PAGE WIRE

ACCO

PAGE STEEL AND WIRE DIVISION
AMERICAN CHAIN & CABLE

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Portland, San Francisco, Bridgeport, Conn.

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custom-engineered
POWER

look to... EP

Since 1909, the job of The Electric Products Company has been to create and develop special electrical rotating equipment . . . motors and generators to do existing jobs better or to reach into new fields to do jobs that couldn't be done before. The natural "by-product" of our more than 40 years of specialization is that you get equipment designed and built to the exact requirements of your application . . . equipment that has greater dependability, longer life and that requires less maintenance.

Send in the coupon below for detailed information about our Custom-Engineered synchronous motors and generators . . . d-c motors and generators . . . induction motors . . . battery chargers . . . frequency changers.

A nation-wide sales engineering and service organization stands ready to meet all User requirements.

THE ELECTRIC
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1725D CLARKSTONE ROAD
CLEVELAND 12, OHIO

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COMPANY_____
STREET_____
CITY_____ ZONE____ STATE_____
X-74

Industry News

(Continued from page 79)

GM Defeats Franchise Cancellation Suits

Automobile dealers suing General Motors Corp. for cancellation of franchises since the end of the war have come off a very poor second. In all cases except one, the dealer lost in the trial court. The one exception resulted in the dealer recovering a substantial judgment in the lower court, but this was reversed on appeal nearly two years ago. Since that time there has been no action to bring the case to trial a second time.

Carborundum Co. Sales Volume Hits New High

Carborundum Co.'s sales volume of $72,218,436 and operating income before taxes of $11,451,098 for the year ended Dec. 31, 1951, were the highest in its history, according to its recent annual repore. Net income amounted to $6,474,692, as compared with $7,530,859 in 1950.

Operating income after taxes was $4,751,098, or $349,106 less than 1950, despite the fact that operating income before taxes was 20 percent higher than in 1950. Non-operating income, after deducting interest expense, was $1,723,594, compared with $2,430,655 in 1950.

Westinghouse Puts On Special Scrap Drive

Westinghouse Electric Corp. has announced that a special intensive three-month iron and steel scrap drive has resulted in the contribution of nearly 5000 tons to the nation's stockpile, or enough scrap for about 500 medium tanks. The amount collected by 22 major Westinghouse plants and all manufacturing divisions was in addition to the company's regular scrap savings of approximately 29,000 tons during the same period.

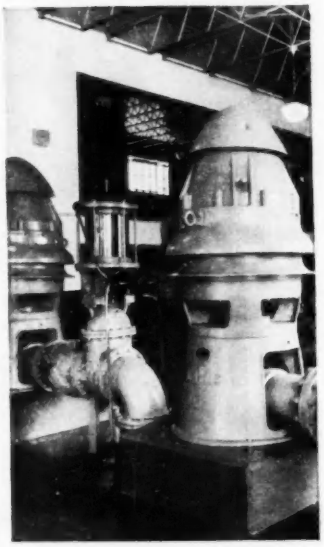
Kelly Reamer Names Tool Supply Co.

Kelly Reamer Co. recently announced that it has appointed Tool Supply Co. as its exclusive sales and engineering representative in northern Ohio.

Cleveland Graphite Bronze Will Acquire Brush Development Co.

Cleveland Graphite Bronze Co. recently announced that it is completing negotiations to acquire ownership of Brush Development Co., Cleveland, O., a research and manufacturing organization in the fields of electronics and technical instruments.

Brush's capital stock of 78,309 shares is to be acquired from the owners in



LAYNE PUMPS
for decatur, alabama

Nine Layne river intake and filtered water pumps have been installed to quadruple Decatur, Alabama's city water supply. Four of these short coupled vertical turbine pumps have a combined capacity of 4-million gallons of filtered water daily.

These self priming, space saving pumps are Layne designed and precision built to maintain peak operating efficiency. They are constructed of materials selected for durability and are rugged enough to give excellent service for the years to come.

Like the city of Decatur, a great number of other municipalities, factories, processing plants and chemical works have found Layne pumps to be exactly as described. All are engineered for the job they are to do . . . and all more than fulfill their performance obligations. For further information address

LAYNE & BOWLER, INC.
General Offices, Memphis 8, Tenn.

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water wells
VERTICAL TURBINE PUMPS
WATER TREATMENT

BROKEN TAPS
Removed!

TOOL & DIE
Repairs!

REPORTED:

$70,000.00 in savings every year in Tool and Die Repair alone from only two Thomas Metalmasters in the world's largest cash register manufacturing plant.

REPORTED:

Terrific drop in scrap loss per man from $35.00 per man to $8.00 per man with the use of 14 Thomas Metalmasters in the world's largest Aircraft engine manufacturing plant.

With the Thomas Metalmaster Disintegrator you'll actually remove broken tap cores in minutes with no fuss—no bother—no toil /.. PLUS the fact that you'll not injure or effect the temper of the workpiece.

For technical information relative to metal disintegration via the TM way, send for your copy of the Thomas Metalmaster Technical Bulletin published monthly in the interest of metal disintegration advancement. This is the only complete and reliable source on metal disintegration available in the world. Direct reports monthly of our findings and advancements right from our own complete Research Laboratories.

Write today on your company letterhead to:

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DETROIT 5, MICHIGAN

There's a factory trained technical engineer in your area ready to give you a free demonstration in your own plant.

exchange of 133,125 common and 15,661 preferred shares of Cleveland Graphite Bronze. The latter's shares being exchanged are shares which until now have been authorized but unissued, so that no outside financing is involved.

Aluminum Production Reached Impressive Total in 1951

The Aluminum Association recently announced final 1951 production figures. Primary production during Dec. was 144,907,819 lb, bringing the final quarterly total to 434,749,889 lb, and the total for 1951 to 1,673,815,406 lb. This represented an increase of 16.5 per cent over the previous year's output, and the final 1951 quarter out-produced the same period in 1950 (382,176,940 lb) by more than 52 million lb.

Shipments of sheet and plate by member companies of the Association's Sheet Div. totaled 74,175,416 lb. for Dec., 233,803,079 lb. for the final quarter, and 1,076,226,278 lb. over the entire year. Previous year's sheet and plate shipments were 1,155,318,982 lb., slightly over the 1951 figure, as were the 1950 final quarter's shipments of 310,-149,800 lb.

Aluminum foil shipped during the year by Foil Div. members of the Association totaled 94,246,269 lb, as compared with the 90,679,719 lb shipped in 1950. Total foil shipments for the final quarter were 19,487,160 lb, as against 27,723,850 lb for the same quarter the previous year. Dec. 1951, shipments were 5,454,190 lb.

The year's shipments of permanent-mold and semi-permanent-mold rough castings (except pistons by member companies of the Association's Foundry Div. totaled 33,697,136 lb. Shipments the previous year were 34,336,-366 lb. During Dec. 2,182,298 lb were shipped.

Oakite Moves to New Quarters

Oakite Products, Inc., recently announced the transfer of its general offices from 22 Thames St. to newer and larger quarters at 19 Rector St., New York 6, N. Y. It is reported that acquisition of the new office space will permit a substantial increase in the facilities of the Oakite chemical research and engineering laboratories.

U. S. Rubber Achieved New Records in 1951

U. S. Rubber Co. set a new record in sales, profit, wages and salaries, and taxes in 1951, according to its 60th annual report released recently. Sales totaled $837,222,092, an increase of 20 per cent over the previous high of $695,755,923 the year before. Profit amounted to $30,366,449, compared with $24,657,647 in 1950, an increase of 23 per cent.

Wages and salaries for the year reached a new high of $245,894,835 compared with $207,707,445 in 1950. In addition, the company paid retirement

Have you heard about

THE LUBRICANT OF MANY USES
Moly-sulfide
A LITTLE DOES A LOT

In the shop—
In the field

Moly-sulfide is a newly-introduced solid-film lubricant, highly successful in applications involving extreme pressures, high velocity, fretting, elevated temperatures and other difficult frictional conditions. We have compiled detailed records of 154 different applications of molybdenum sulfide to actual shop and field problems—some of which might be similar to your own.

Shopmen, engineers, lubrication specialists—write now for a copy of this new 40-page booklet.

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One Small Box Oven or a Complete Finishing System

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OUR ENGINEERS WILL GLADLY SUBMIT LAYOUT AND QUOTATION—NO OBLIGATION

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WARNING

Sparton HELPS MAKE IT SURE

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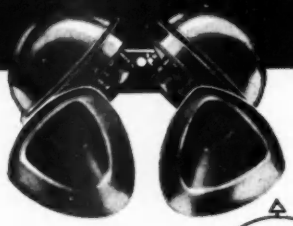
GRC

TINY ZINC DIE CASTINGS



ACTUAL SIZE

The Sparks-Withington Company found small inexpensive Gries zinc die castings made ideal supporting bracket spacers for their Sparton air-shell horns. Whatever you manufacture—warning signals, bazookas or electronics equipment—it will pay you to consider the speed and economy of die casting for your small metal parts. Gries' exclusive facilities turn out simple or intricate parts in one automatic operation—completely trimmed, ready for use. 100,000 pieces to many millions.

Max'm. Weight ½ oz.
Max'm. Length 1⅝ in.
Smallness Unlimited

Write today for bulletin and samples.

GRIES REPRODUCER CORP.

120 Willow Ave., New York 54 ● Phone: MOtt Haven 5-7400

allowances totaling $1,520,710 to 2,422 former employees. An average of 65,083 persons was employed, compared with 59,069 in 1950.

The sum of $71,110,862 was set aside for federal and foreign income, excess profits taxes, and renegotiation. This was an increase of 128 per cent over similar taxes and renegotiation in 1950, and it was more than 2 1/3 times the year's profit. It took 8.5 per cent of the sales dollar compared with 4.5 per cent in 1950.

Chrysler Scrap Drive Picks Up Momentum

Chrysler Corp. increased its total collection of scrap metal since its drive began last year to nearly 8500 tons when it added 3164 tons of scrap during Jan. The company's parts depots and dealers made the major contributions during the Jan. drive. The month's total was increased by a substantial tonnage of parts ruined by flood waters at the Kansas City, Mo., depot last year. The company itself and its vendors so far have contributed about equally to the total of obsolete tooling scrapped—5293 tons.

Military Engines to be Standardized by July 1

The Dept. of Defense announced recently that it will have specifications and standards on industrial gasoline engines with three to four in. bore sizes ready for procurement purposes about July 1. The announcement was made in reply to industry requests for advance notice of several months on military conversion to use of standardized industrial internal combustion engines developed under an engine standardization project.

The project was established to provide interchangeability of parts regardless of engine make. It will encompass automobile, industrial, and military-type engines.

New White Dump Truck Features Planetary-Drive Rear Axle

A new model 18-ton dump truck for stripping and quarry operation has been announced by Sterling Div. of White Motor Co. Featured in this new dumper is a planetary-drive type rear axle equipped with a Sterling-White differential. This special differential is said to divide the power delivered to each rear wheel according to the grip dictated by road and load condition.

Also incorporated in the rear axle is the "Tri-Pinion Drive." This gear arrangement, with the internal ring gear rotating around the sun gear and the idler or intermediate gears rotating on fixed centers, reportedly permits using larger and stronger gears within the available space. In addition, the power is said to be applied at a greater radius from the wheel center.

The truck has a short 161 in. wheel-

SOMEWHERE THERE'S A PARTS MANUFACTURER

. . . Somewhere there is an Automotive Parts Manufacturer looking for just the right kind of sales organization to help increase his sales or reduce his cost of selling to car and truck producers.

. . . Somewhere there is a president who just hasn't the time to maintain top level contact among the big production parts buyers.

. . . Somewhere there is a Comptroller who worries about the high cost of selling automobile manufacturers whose volume is declining.

. . . Somewhere there is a sales manager who needs a staff of experienced industry-known salesmen who can help assure his success in the original equipment field and their service parts outlets.

. . . Somewhere there is a chief engineer who would like to have a continuing intelligent contact with the engineering and experimental departments of car and truck manufacturers.

. . . Somewhere there is a production manager who would like more facts on which to base his schedules.

We would like to meet these men!

. . . We believe our 35 years' experience in the automobile industry can help solve some of their problems.

. . . We are unusually well equipped to maintain the top level contact so necessary to good customer relations.

. . . Our sales people are experienced and successful in selling to car and truck manufacturers.

. . . Our engineering staff is constantly in contact with automotive engineering and research developments.

. . . Our strictly commission plan ties sales costs to sales volume and eliminates the necessity for an expensive fixed cost Detroit sales office.

IF you are the automotive parts manufacturer we are looking for—write us today! We will be glad of the opportunity to give you more details.

T. W. MOSS AND ASSOCIATES

19250 James Couzens Highway

Detroit 35, Michigan

base and a hydraulic power-actuated steering gear. It is claimed that the most efficient speed for every operating condition can be selected quickly from a range of ten forward speeds in the heavy-duty transmission.

Piper Aircraft Announces New Executive Aircraft

The prototype of a new low-wing, twin-engine executive plane was unveiled recently by Piper Aircraft Corp. Full specifications and performance data are to be released after flight testing which is scheduled to start shortly.

Except for a small after-section of the fuselage, which is said to have a non-flammable plastic finish, the entire airplane is all metal-covered. The fuselage structure is of welded steel.

The cabin is reported to be quite large with ample room for four passengers and a spacious cargo compartment accessible to a large freight loading door. Dual fins and rudders are provided at the tips of the all-metal stabilizer. Undercarriage is a retractable tricycle landing gear with wheels remaining in slightly exposed position to reduce or eliminate structural damage in case of "wheels-up" landing.

The company has stated that it will be at least 12 months before the plane will have completed its flight tests for certification and before tooling is completed for production. Initial deliveries are not expected before 1953.

ACF to Fabricate B-47 Bomber Subassemblies for Douglas

American Car and Foundry Co. recently announced that Douglas Aircraft Co. is negotiating with its St. Charles, Mo., plant for the fabrication of subassemblies to be used in the manufacture of the B-47 bomber. The subassembly for the B-47 will consist of the aft section of the fuselage. When completed by ACF, they will be shipped intact for final assembly elsewhere. All work in this connection will reportedly be aluminum fabrication, with the exception of certain fittings.

Piasecki Delivers New HUP-2 Helicopters

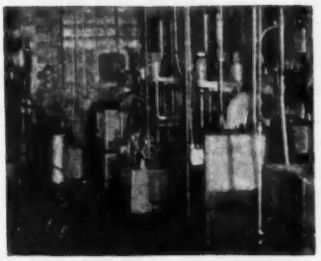
Piasecki Helicopter Corp. has announced the start of deliveries of the second version of the HUP-type helicopter to the Navy. Designated the HUP-2, this model eliminates the tail of the HUP-1 type and obtains its stability through use of an autopilot installation adapted by Piasecki engineers and Sperry Gyroscope Co.

The latest HUP's, like their predecessors, are said to be compact, tandem-rotored helicopters especially designed for shipboard service. They are reported to be small enough to go down a cruiser elevator with the rotor blades folded and down an aircraft carrier's elevator with the rotor blades unfolded.

(*Turn to page 565, please*)

SPEEDYLECTRIC

STEAM BOILERS FOR PROCESS STEAM



Two of the several Speedylectric Boilers used to operate plastics presses at the Wells Manufacturing Corp., Fond Du Lac, Wisconsin.

With a Speedylectric Boiler you can have steam as needed for precise control of heating temperatures of ovens, molds, kettles and other equipment, at the flick of a switch.

- Process temperatures to 565°F
- Automatic non-fluctuating pressure control
- Simple installation—no long pipe lines
- *Economical—safe—dependable*

Improve quality, reduce costs and increase production with Speedylectric Boilers. For full details — write for Bulletin 32-12.

STEAM JET CLEANERS MAKES TOUGH JOBS *EASY*

Model JC-50 blasts through road dirt, caked grease, tar deposits . . . in minutes the body, chassis, engine and other parts are clean, ready for inspection and repair.

Cut cleaning costs 75% with all-electric Speedylectric Steam Jet Cleaners. Hot, dry steam with or without detergent safely and silently cleans vehicles and equipment *in your garage or outside* without danger or inconvenience to workers. High pressure hot and cold water rinse available. Steam Jet Cleaners are built in five sizes—there's one to fit your cleaning needs. For details — write for Bulletin 72-12.

Field Engineers in all industrial areas

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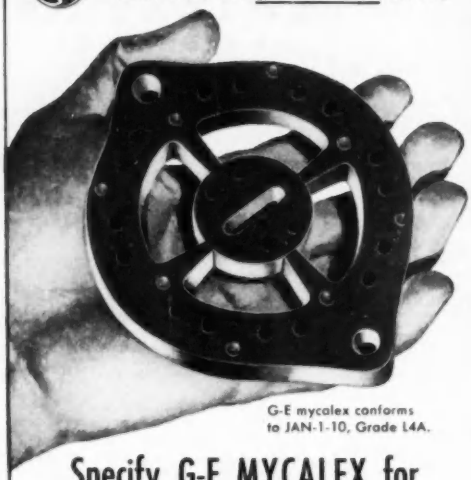
CUSTOM-MOLDED PARTS FOR INDUSTRY'S TOUGHEST JOBS



G-E mycalex conforms to JAN-1-10, Grade L4A.

Specify G-E MYCALEX for tough electronic jobs like this

This rotor-and-stator assembly for an electronic "gang switch" had to fit exactly . . . be perfectly flat and rigid . . . with thirty-two holes molded into the stator for multiple contact points. The assembly was too delicate—flatness tolerances too exacting—for manufacture from fixed ceramics.

This difficult electronic problem was solved with General Electric mycalex—a stone-like insulating material composed of special glass and powdered mica. G-E mycalex offers a unique combination of properties, including heat resistance up to 700 F, high dielectric strength, excellent chemical and dimensional stability. Proving the best possible material for *this* application, it may well prove the answer to some tough electronic problem of *yours*.

GENERAL ELECTRIC'S COMPLETE MOLDING SERVICE ALSO OFFERS YOU:

G-E *sealing caps and sleeves* —to protect tubing and small parts from air, moisture, dirt, and chemicals . . . insulate wires . . . protect valves from mishandling.

G-E *silicone rubber parts* —for electrical and sealing applications. They offer low moisture absorption, and excellent heat and cold resistance.

For more information, write to General Electric Company, Section LA-3, Chemical Division, Pittsfield, Mass.

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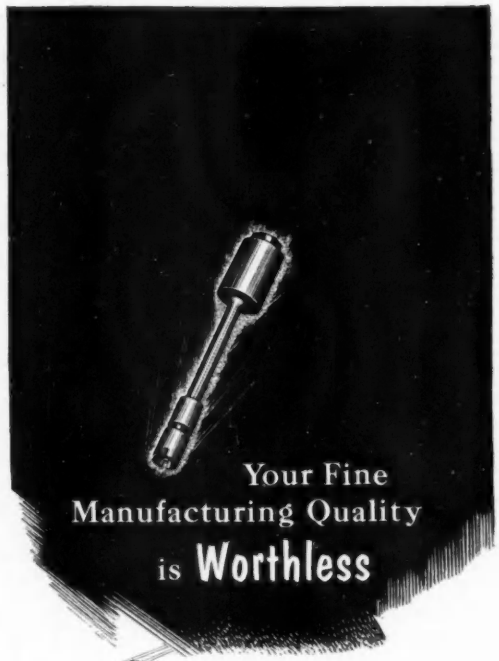
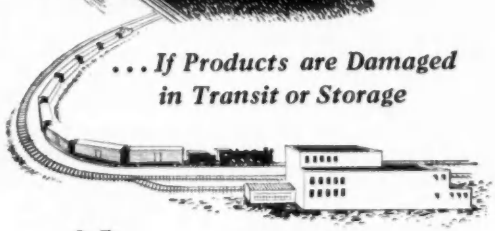


Your Fine Manufacturing Quality is **Worthless**

. . . If Products are Damaged in Transit or Storage



No matter how fine your finished products may be, they are always subject to serious damage in transit and storage if not properly packaged for full protection against abrasion, dirt, moisture, dust, water . . . under extremes of heat or cold. Such damage often makes those quality products worthless to the buyer, and *you are blamed.*

No matter what your products may be . . . tiny or tremendous, hard goods or soft . . . Kennedy's expert packaging engineers are always ready to develop, and its extensive plant is fully equipped to produce the necessary bags and covers of paper, foil, plastic film or combinations of each that will assure this vital protection. Such packaging means product delivery in factory-fresh condition, regardless of time or weather.

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Armed with all-out experience in two world wars, Kennedy is fully prepared to meet in stride both domestic and military packaging demands of today . . . and tomorrow. Write or wire for assistance of our packaging engineers. No obligation.

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NEW YORK PHILADELPHIA BUFFALO CLEVELAND DETROIT
CHICAGO LOS ANGELES SAN FRANCISCO PORTLAND SEATTLE

Industry News

(*Continued from page* 563)

Falling Rubber Prices Augur Cheaper Tires

All indications point to a reduction in tire prices before very long. Since the price of natural rubber has been falling steadily on the world market and production of synthetic rubber in this country have reached record heights, an abundant supply with consequently lower prices seem inevitable.

Second, controls over types and amounts of rubber to be used are being relaxed, so competition is again becoming strong. This is indicated in the reappearance on the market of second-line tires by two prominent tire makers. These second-grade tires in normal times make up about 20 per cent of production and are priced from 20 to 25 per cent below first-line casings. Finally, there is a clamor for the return of white side wall tires. Current reports are that the Government will relax its restrictions on them soon.

General Tire Sales Soar to an All-Time High

General Tire & Rubber Co.'s sales for 1951 reached an all-time record of $170,771,521, an increase of 36 per cent over last year, according to its recent annual report. The company's previous high sales mark was established in 1947 when a report of $126,135,242 sales was made.

General's net income after taxes was $7,790,467, including net income from its television and broadcasting activities of $773,827. Federal, state, and other taxes for General were increased by 83 per cent over 1950.

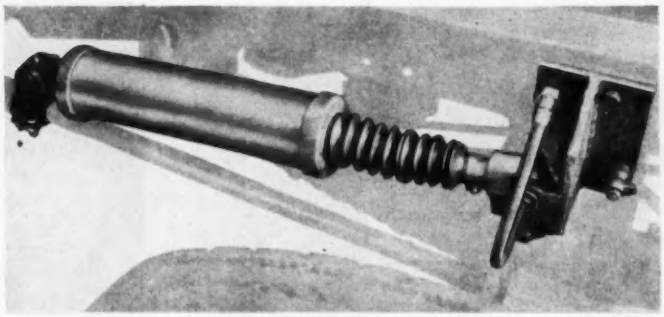
Studebaker Changes Automatic Transmission Fluid Number

Studebaker Corp. has announced that the specification for fluid to be used in its automatic drive has been changed from premium-type SAE 10W engine oil to Type A (AQ-ATF) automatic transmission fluid. The recommendation for checking the fluid level at 1000-mile intervals, adding fluid as required, and draining and refilling at 15,000-mile intervals remains unchanged.

Douglas Sales and Backlog Attain New Record Heights

Sales of $225.173 million and a backlog of $1.635 billion, both peacetime highs, were reported recently by Douglas Aircraft Co. today for the fiscal year ended Nov. 30, 1951.

In spite of the record sales and earnings of $18.579 million before taxes, net earnings amounted to $6.913 million, compared with a net of $7.214 million from pre-tax earnings of $13.214 million and sales of $129.893 million in 1950.



Air-O-Matic Power Steer Booster installed on White Truck Model 302264

AIR-O-MATIC *AIR POWER STEERING*

for

SAFE STEERING ASSIST

A self-contained unit, easily installed. Only one air line required. Low initial cost and maintenance.

Used by manufacturers of trucks, tractors, Moto-Cranes, off-the-road equipment, Military and other vehicles.

Technical information furnished upon request.

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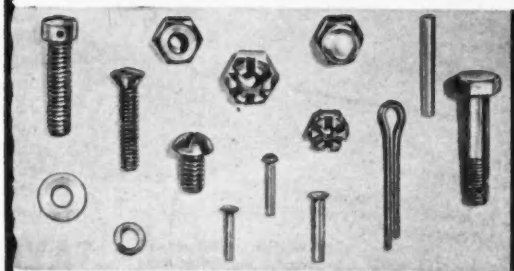
WRITE FOR CATALOG X

Allmetal Stainless Fasteners meet the rigid specifications of the Aviation Industry. All types and sizes, "AN" or STANDARD, in stock. Stainless Phillips Recessed Head Screws and Specials available too. Complete facilities under one roof assures prompt delivery.



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- RIVETS
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STAINLESS STEEL FASTENERS

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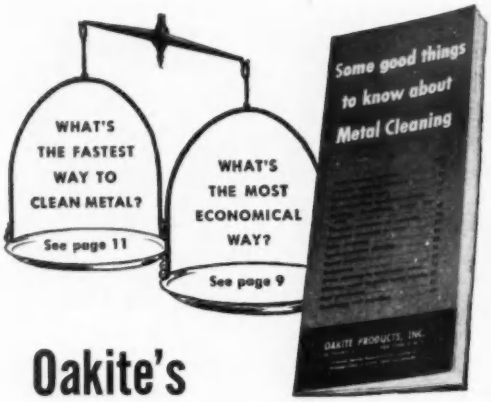
WHAT'S THE FASTEST WAY TO CLEAN METAL?
See page 11
WHAT'S THE MOST ECONOMICAL WAY?
See page 9
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answers many questions that mean better production, more profit for you. Just look at the table of contents:

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Pieces weighing 500 to 1200 pounds, within 2 oz. inches.

Pieces weighing 75 to 500 pounds, within 1 oz. inch.

Pieces of lighter weights to diminishing tolerances down to .02 oz. inch.

HI-EFF Balancing machines are available in 5 sizes with work piece diameters up to 48 inches. These may be equipped with HI-EFF Hand Weighing Mechanism (as shown) or HI-MAX Direct Reading Mechanism. Write for folder "Balance Your Product."

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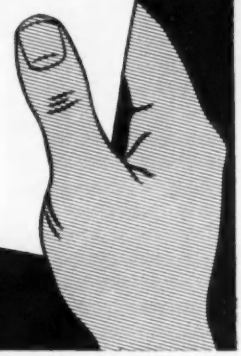
*letter from secretary

METAL EDGE—the engineered method—has solved diverse packaging problems in more than 100 American industries.



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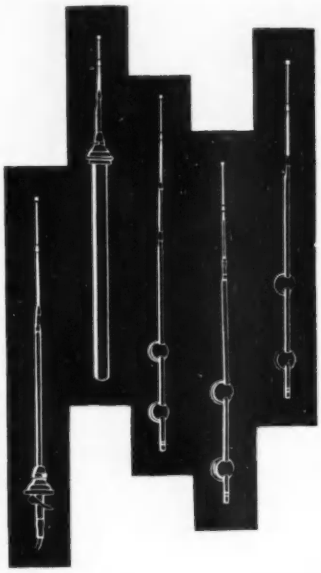

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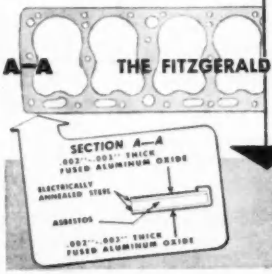

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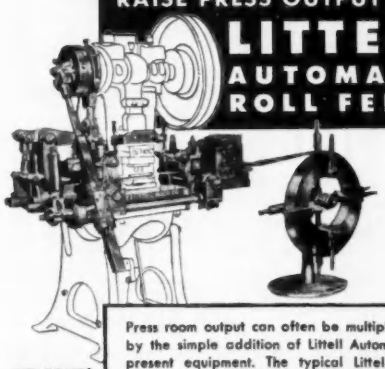

Press room output can often be multiplied five times by the simple addition of Littell Automatic Feeds to present equipment. The typical Littell Double Roll Feed shown here grips the stock on both sides of the die to assure maximum traction and feeding power. Stock is easier to start and finish in progressive die work. No hand feeding at either end of the stock. Rack and pinion drive provides the smoothness and the gradual acceleration and deceleration of feed rolls for a truly accurate feed. Standard Littell Automatic Feeds serve all types and sizes of presses, handle all standard widths and thicknesses of stock.

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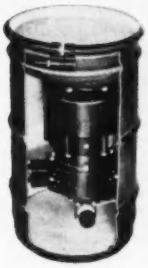

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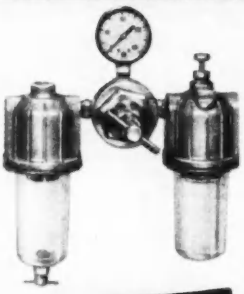

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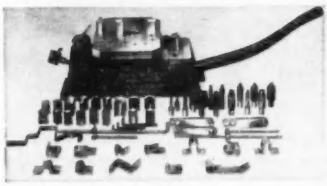

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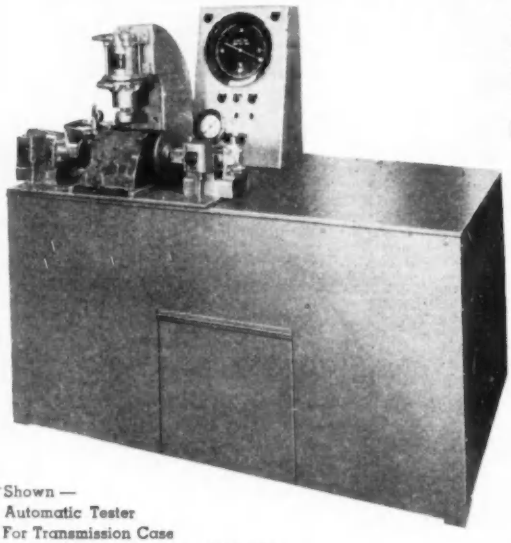

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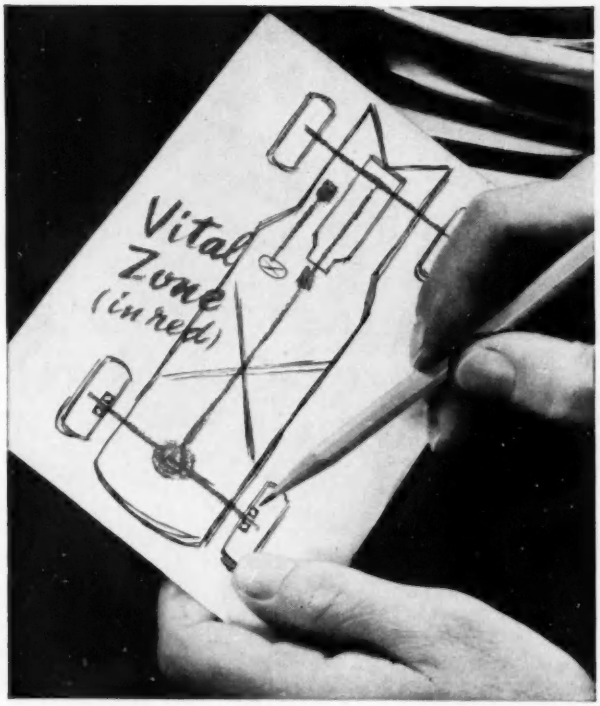
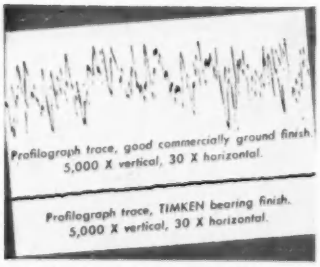
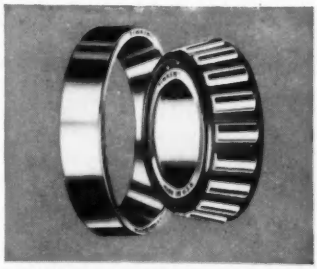


How TIMKEN® bearings give you value where it counts most . . . in the "vital zone":


Profilograph trace, good commercially ground finish. 5,000 X vertical, 30 X horizontal.
Profilograph trace, TIMKEN bearing finish. 5,000 X vertical, 30 X horizontal.

TO MEASURE SURFACE FINISH to within a millionth of an inch, the Timken Company developed a special instrument — the profilograph. Shown above is a typical profilograph trace. With the profilograph, The Timken Roller Bearing Company has been able to set new standards of bearing precision.



THE TOUGHEST BEARING APPLICATION on a car — the pinion — is one of the many places where Timken bearing value shows up in service. And all but two makes of cars use Timken bearings on the pinion. In wheels, steering gears, and throughout the "vital zone", Timken bearings give friction-free, trouble-free performance.

ONLY TIMKEN BEARINGS GIVE YOU ALL THESE VALUE FEATURES

QUALITY

1. Design leadership
2. Steel made in our own mill
3. Precision manufacture
4. Rigid quality control
5. More than 50 years' experience

SERVICE

6. Unequalled engineering service
7. Unequalled research and development facilities for your use
8. Installation service in the field
9. Widest range of sizes
10. Most dependable source of supply

PUBLIC ACCEPTANCE

11. First choice throughout industry
12. Best-known name in bearings
13. Widespread advertising

it's TIMKEN for VALUE

TRADE MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ⊂⊃ THE TIMKEN TAPERED ROLLER ⊂⊃ BEARING TAKES RADIAL ↕ AND THRUST →← LOADS OR ANY COMBINATION ✳